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BEACONS ON OUR WAY: SOME MEMOIRS OF THE CHILDREN'S HOSPITAL, MELBOURNE.[1]

By HOWARD BOYD GRAHAM,
Melbourne.

THE EARLY HISTORY (1870 TO 1877).

THE population of Victoria was over 700,000 in 1870 and almost one-third were in the metropolitan area. Melbourne was over-crowded and very insanitary. Unemployment was rife and wages were very low. The mushroom growth of the colony and its capital city had been caused by the gold discoveries; but gold was not lying about any more. The mines and diggings had produced wealth in abundance; but heavily capitalized companies, using expensive machinery, had to wait long years for the profits. Small groups of men could not get gold for themselves any longer. They had crowded into the city looking for homes and work.

More than one-half of the deaths in Victoria were those of children under five years of age (first report). Typhoid fever, in various disguises, was prevalent; it was lethal in summer and autumn (Thomson, 1874). The babies were dying of diarrhœa and infectious diseases in a climate which was reputedly salubrious. Provision was made for a few sick children at the Melbourne Hospital and at the Lying-In Hospital; but adults were ousting the children. The Melbourne Hospital was expanded to hold 300 beds. A strong committee was actively engaged on the erection of the Alfred Hospital. It was opened in 1871 as a second large general hospital without a ward for children.

In the winter of 1870, Dr. William Smith, a recent arrival from England, wanted to open a small hospital for sick children; but at first he did not get the support that he needed. Soon, however, Dr. John Singleton joined forces with him. They opened a little hospital at 39, Stephen Street (now 49, Collins Place). It was to be a free hospital with a free dispensary for the children of parents in necessitous circumstances.

John Singleton and William Smith found a staunch ally in Robert Williams Pohlman, of whom it is recorded that he took an active part in all that pertained to the public charities of Melbourne ("Victorian Men", 1878). He was the first appointed County Court judge in Victoria.

A prospectus was drafted and a meeting was convened to give consideration to the project. The inaugural meeting was held on September 9, 1870, at the parsonage of the Cathedral Church of Saint James, which was near the north-west corner of Collins Street and William Street. The opinion of the meeting was that it was "highly desirable

[1] Read at the H. Douglas Stephens Memorial Meeting of the Melbourne Pædiatric Society, June 10, 1953.

to establish in Melbourne a hospital for children" (Smith, 1900). Judge Pohlman was appointed president, Mr. Mars Buckley honorary treasurer and Dr. William Smith honorary secretary. A committee of ladies was formed to conduct the hospital. They were to be assisted in the business affairs by a few gentlemen. Dr. Smith and Dr. Singleton undertook the duties of attending medical officers. Professor George Britton Halford accepted office as consulting surgeon; he was the sole full-time professor in the Medical School at the University. Dr. James Bridgeham Motherwell became the consulting physician. He was prominent as a member of the honorary staff at the Melbourne Hospital and of the Faculty of Medicine. It is said of him that he was the best-loved man in Melbourne.

The new committee of management took over the control of the little hospital at 39, Stephen Street. The building had a frontage of only 20 feet. The free dispensary and out-patient clinic occupied the ground floor. A few beds for in-patients were provided upstairs. Clinics were held three times a week. The premises were quite inadequate; larger ones in a better situation were desired right from the beginning. Early in 1872, at the second annual meeting, a report was adopted covering fifteen months to December 31, 1871 (second report). Mrs. Perry, wife of the Anglican Bishop of Melbourne, who was the original president of the ladies' committee, resigned in favour of Mrs. Bromby, wife of the Rev. John Edward Bromby, headmaster of the Church of England Grammar School. Dr. Smith and Dr. Singleton both resigned; and a new medical staff was appointed. Dr. William Smith as "one of the founders of the hospital, was made Life Governor in recognition of valuable services to the Institution".

William Smith.

The information available about Dr. William Smith is scanty. He was a member of the Medical Society of Victoria and signed the attendance roll on several occasions. He obtained the degree of bachelor of medicine, Melbourne, *ad eundem gradum*, in 1871. The following paragraph appeared in October, 1871, in the *Australian Medical Journal*:

> Dr. William Smith has resigned his appointments of Demonstrator of Anatomy in the University of Melbourne, Curator of the Pathological Museum of the Melbourne Hospital and Surgeon to the Children's Hospital, in consequence of his having left Melbourne to enter general practice in the western district.

John Singleton (1808 to 1891).

Mary Kent Hughes (1950) has given us a vivid picture of the activities of her saintly ancestor, John Singleton. He was just forty-three years of age when he came to Melbourne from Dublin in 1851, accompanied by his wife and family. He was foremost in many of the philanthropic crusades of the period in Melbourne. His name is still attached to some of the institutions he founded, and occurs several times in the current "Directory of Social Services" (1953). He was a social zealot and was deeply religious, ever ready to assist the needy or to succour the distressed and the fallen. When his long, useful life ended in 1891, his autobiography was published (Singleton, 1891). Dr. Singleton was a member of the Medical Society of Victoria and took part in some of the meetings. He was sixty-three years of age when he resigned from the staff of the Hospital for Sick Children. Dr. Singleton stated that he resigned "on account of his various engagements knowing that other medical men would gladly take his place" (1888, *a* and *b*). More particulars of the circumstances have been supplied by Mary Kent Hughes (1950) and are based on the autobiography. He took exception to a decision to discontinue the custom of opening the committee meetings with prayer; and he had a dispute with the members on the principle of refusing to accept tainted money. The latter incident was mentioned in the *Australian Medical Journal* (1870, 15: 376) in the following derisive terms:

> The extremity of fatuous bigotry seems to have been reached in the fact of the Committee of the Children's Hospital having declined to receive, as a contribution to their funds, a portion of the very handsome sum realised by the lecture lately delivered by the Rev. Dr. Bromby; the grounds of the refusal being the alleged heterodox views held by the lecturer.

Dr. Bromby published a number of pamphlets, one of which is a lecture on "Prehistoric Man" (1869) which contains an account of his ideas on the subject of man's creation. His volume of "Sermons on the Earlier Chapters of Genesis" (Serle, 1949) must have been over-strong meat for strait-laced friends of the hospital, of which his wife was a leading light.

Incidentally, the committee gratefully acknowledged a donation of £32 from the Early Closing Association, under whose auspices Dr. Bromby delivered the series of lectures (second report).

The New Medical Staff (1872).

Three honorary attending medical officers were appointed to replace the original two doctors who had resigned. At least one was to receive patients at the hospital each day. The consulting staff was also augmented. The new visiting officers were Dr. A'Beckett, Dr. Black and Dr. Wigg. Professor Halford and Dr. Edwin Matthews James were the honorary consulting surgeons. Dr. James Edward Neild joined Dr. Motherwell as an additional consulting physician.

Joseph Black was already well known when he entered on his duties at our hospital in 1872. He was president of the Medical Society of Victoria in 1862. He stayed in this new position only until 1875. Henry Carter Wigg had an Edinburgh doctorate and remained on the staff in the new appointment until 1882. He became an authority on pathology and forensic medicine, and frequently contributed to the scientific programme of the Medical Society of Victoria. James Edward Neild was a very versatile character, about whom much has been related elsewhere (Graham, 1952). Edwin Matthews James was a competent surgeon at the Melbourne Hospital. The late G. T. Howard, in an unpublished manuscript, states that James was a worthy representative of Old England. He interrupted a medical career to try his luck on the Victorian gold-fields. Later, he was a dispenser and then an assistant resident surgeon at the Melbourne Hospital. After some years James went back to England, but soon returned with a surgical qualification. By going into partnership with Garrard, at the corner of Collins Street and Spring Street, he speedily obtained a good practice. He was senior by a few years to his famous colleague, T. N. Fitzgerald, at the Melbourne Hospital. He always appeared in frock coat, bell-topper and gloves and carried a stick. He was a tall, grey-haired man of good figure. He was dignified without being pompous. His surgery was of the very first order of that period, and he displayed common sense and good judgement, but was rather conservative. He attended to his hospital duties regularly and conscientiously.

William Goldsmid A'Beckett (1837 to 1926).

W. G. A'Beckett, son of Thomas Turner A'Beckett, was born in London in 1837. Most of the members of this illustrious family were legal luminaries, but our Gerald Weigall and his son are descendants of T. T. A'Beckett. A'Beckett graduated in England and practised for a few years at Creswick, Victoria. He then came to Melbourne, was for a short time at Chapel Street, Prahran, and for the rest of his life practised at Wellington Street, Saint Kilda. He was a handsome man with a full flowing beard. He must have resembled Dr. W. G. Grace, the famous cricketer, who was born eleven years after our "W.G." and died eleven years before him. A'Beckett remained on the active staff at the hospital until 1895, when he was transferred to the consulting staff. Mrs. W. G. A'Beckett, his wife, was also very closely associated with the affairs of the hospital. She was honorary secretary of the ladies' committee from 1872 until she had a cerebral catastrophe in 1889. Paralysed, she survived in a wheel-chair for two or three years. Some of their descendants and relations are still living in Melbourne.

Organization.

The names of the men and women who were the first administrators are recorded in the early reports; space alone forbids that the details should be repeated herein. They quickly earned the gratitude and confidence of the community. A set of by-laws was published which has been the basis of the machinery of management and control of the affairs of the hospital. Many of the foundation committee members gave faithful and valuable service for long periods of time. The ready response they obtained for public financial backing has been maintained as a feature of the history of the institution.

In 1872 the name "Free" was dropped and the hospital was called the "Melbourne Hospital for Sick Children". It retained that title until it was altered formally in 1903 to the "Children's Hospital", a term which had been in use for several years (34th report). A grant of land was sought from the Government and a building fund was inaugurated in 1872. Open-air concerts were held in the Botanical Gardens, and bazaars were conducted successfully in the Melbourne Town Hall and in several suburban centres. Within a year there was more than £2000 in the building fund, and an acre of land near the Royal Park was offered by the Government and accepted by the management.

Temporary Premises in Spring Street (1874 to 1876).

As it was clear that suitable buildings could not be erected immediately and that the first quarters were far too small, a temporary home for the hospital was found in Spring Street near by. A three-storeyed house (still standing as 13, Spring Street) was leased for three years. It was necessary to have a matron in charge; Miss Harvey was appointed and held office until April, 1875. Her successor was Mrs. Bishop, who had held a similar position at the Ballarat Hospital for many years. Mrs. Bishop was closely identified with the growth and development of our hospital; she was matron for twenty-four years. When she retired, 60 women held the certificate of the hospital as trained nurses. In the year of Mrs. Bishop's retirement over 900 children were in-patients and over 12,000 were out-patients.

During the first year of occupancy of the Spring Street house, the receipts expanded with the increase in maintenance expenditure. A sum of over £200 was received from the first "Hospital Sunday" collection. Voluntary contributions from other sources amounted to more than £600. The Government granted £500 towards maintenance and £2500 to the building fund, which had risen to £5400.

In 1875, Mr. Mars Buckley, Mr. Croaker, Mr. Robert Murray Smith, Mr. G. H. F. Webb and Mr. Theyre Weigall joined the committee of management as a building committee. These men and others were actively engaged for many years in the promotion of business arrangements for the expansion of the hospital. Subscriptions rose encouragingly each year. A "penny for the hospital" scheme obtained the support of the children in 80 State schools in that first year; in years to come, substantial sums reached the hospital by that route.

Mrs. Wilberforce Stephen presided over the ladies' committee from 1873 to 1884. She set the fashion whereby a suitable woman has usually continued in office as president for many years. Mrs. Bromby retired after one year in the chair. Mrs. Stephen's husband, James Wilberforce Stephen, in youth a boon companion of Alfred Deakin, became a brilliant lawyer. He entered the Legislative Assembly in 1871 as member for St. Kilda, became attorney-general in the Francis administration in 1872 and was soon a judge of the Supreme Court. He executed the trust deed for the hospital management and displayed such skill that it has always been able to withstand legal challenge.

Dr. William Carey Rees replaced Dr. Joseph Black as an attending medical officer in 1875. Dr. Rees was one of the first two graduates of the local medical school (Dr. Patrick Moloney was the other). Rees served the hospital until he died at an early age in 1879.

Rathdown Street, Carlton (1876).

Sir Redmond Barry's commodious home was purchased in 1876 for £10,000 (seventh report). It stood facing Rathdown Street and the Carlton Gardens (now the Exhibition Gardens) on an acre of ground extending down Pelham Street to Drummond Street. The acre near Royal Park had been fenced, but it was abandoned in favour of the Carlton site. Royal Park was considered to be too remote from the people who wished to use the hospital. In those days the road surfaces were poor and there were no tramways.

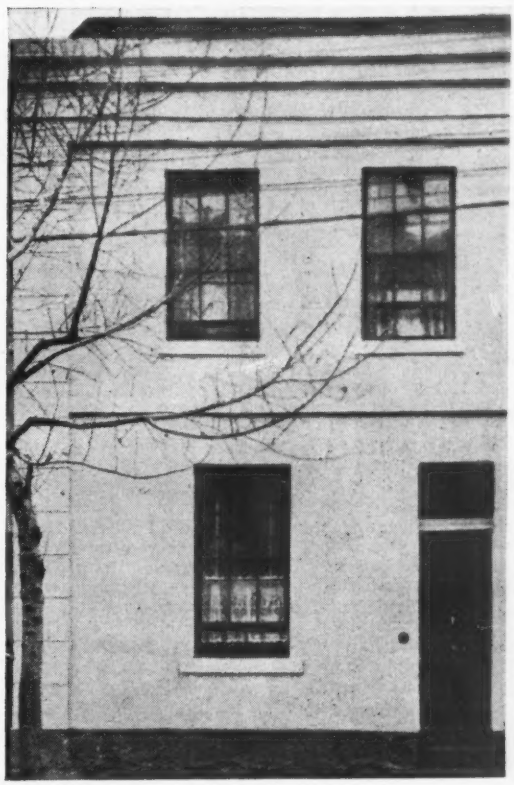

FIGURE I.
The first Children's Hospital, 1870.

Under a trust deed, Mr. Justice Stephen, Judge Pohlman and Mr. Henri Hart, Mr. Murray Smith and Mr. Theyre Weigall were appointed trustees for the hospital. They bought the house property and promptly raised a loan upon the security of £5000 at 6% interest. With the property thus encumbered, funds became available for the erection of an isolation cottage and for the renovations and alterations inseparable from its occupation as a hospital.

The opening ceremony was performed on September 27, 1876, by Lady Bowen, the wife of Sir George Ferguson Bowen, Governor of Victoria. One of the wards was named after Lady Bowen. When the original building was demolished in 1912 for the erection of the Edward Wilson (Surgical) Pavilion, one of the new wards was called the "Bowen Ward".

At Rathdown Street, the daily average of occupied beds quickly rose from 15 to 24. A resident medical officer was needed to assist the visiting staff. In 1877, Dr. Charles Deavie Hunter became the first occupant of this office. He resigned in a year's time and Dr. William Snowball took his place. The arrival of Dr. Snowball terminated the preliminary phase of the history of the hospital.

The First Beacons on Our Way.

Walter de la Mare has given us a poetical allegory about the heavenly lamplighter who lights our earthly lamps to guide us on the journey of life and extinguishes them when "in the East cometh morning". The lighted torches of William Smith, John Singleton and W. G. A'Beckett are in the forefront of a lengthening procession of "beacons on our way" which illuminate the medical services of the hospital.

William Snowball (circa 1851 to 1902).

William Snowball was the first great Australian pædiatrician. He was educated at Wesley College, at the Melbourne Church of England Grammar School and at the local medical school. Professor H. B. Allen (1902) has given us an interesting account of Snowball's academic accomplishments. They were fellow-students and graduated together at the end of 1875. Snowball pursued his professional studies abroad. He obtained the licentiates of the Society of Apothecaries of London and of the College of Surgeons of Edinburgh and studied diseases of children at Great Ormond Street Hospital, London. Back in Melbourne, he came to the Hospital for Sick Children in 1878. From that moment he dedicated himself to service for babies and children and to the work of the hospital. He was a big, genial man of great ability and remarkable personal charm. We have reason to believe that his surgical work was mediocre, but he was a great physician. He was a talented teacher at the bedside and a skilled consultant. He served on the attending staff from 1881 until just before his death in 1902. During that time he led in the development of the small parochial hospital into one of world ranking. Snowball also had a large private practice in Carlton, which was then a fashionable location. He was president of the Victorian Branch of the British Medical Association in 1895. His fame spread far beyond the boundaries of the colony. He was at the zenith of his power during the years of the great land boom, when wealth abounded and optimism soared. Public and private purse-strings were loosened and the hospital gained valuable endowments and new buildings. John Williams and Robert Stirling, of the Melbourne Hospital, were his cronies. His chief professional associates at our hospital were W. G. A'Beckett, Peter Bennie and the doughty surgeon Charles Ryan. A generation of admirers took them to their hearts; "Snowy", "Peter" and "Charley" became household names for them.

Hospital Memoirs (1878 to 1888).

In 1878, a system of using and training pupil nurses started, and an experienced nurse, Mrs. Bellaine (late of the Hobarton Hospital) joined the staff to assist the matron, Mrs. Bishop. In the following year several rooms were added to accommodate these pupil nurses. This nursing system did not provide for a complete course of training; the trainees were known after graduation as "nurse", not as "sister".

When Dr. Carey Rees died in 1879, William Garrard, Edwin James's partner, became an honorary attending medical officer. In 1881, Snowball joined the honorary staff on resignation as resident medical officer. The first hospital pharmacopœia was prepared at that time and met with enthusiastic approval. By 1882 senior medical students were unofficially received for instruction; but the committee of management announced its purpose "to form a school of instruction for students of the University" (13th report). Two wards were provided for private paying patients, and amenities such as a supply of running hot water were introduced. Small registration payments were accepted from patients to form the "convalescent fund", by means of which selected children were given "a change of air". In 1884, mainly through the exertions of Dr. and Mrs. A'Beckett, an acre of land was purchased in Holyrood Street, Brighton, upon which a convalescent cottage for 15 children was erected. It was declared open by Lady Loch on December 2, 1884. It became a valued adjunct to the main hospital.

Garrard died in 1882, and Charles Ryan filled the vacancy on the staff. Garrard graduated in England in 1849 and was already a senior surgeon before he came to our hospital. In 1882, Peter Bennie replaced J. E. Willmott, a distinguished Aberdonian doctor, who was a member of the visiting staff for a brief period. Thus the team came together which remained intact until death claimed Snowball in 1902.

Hospital Extensions (1886 to 1887).

Mrs. Elizabeth Testar became president of the ladies' committee when Mrs. Wilberforce Stephen resigned in 1886. Hospital extensions were announced. The main building was altered and enlarged. An operating room, a capacious balcony, extra baths and additional accommodation for nurses improved and modernized the hospital.

A second resident medical officer was appointed as the bed-strength was increased by 30 beds. Arthur Jeffreys Wood with Edward Alan Mackay as "galvanist" and Frank Hobill Cole as second resident medical officer became a full-time medical team. They, joined later by Richard Stawell and Robert Hamilton Russell, formed a second echelon, moving in behind Snowball, Ryan and Bennie.

The new wards were opened on December 5, 1887, by Lady Loch. One of them was named the "Elizabeth Ward" after Lady Loch and Mrs. Testar. The Governor, Sir Henry Loch, contributed £100, and 29 other people followed his example. At the instance of Mrs. Sumner, over £2000 was provided from the Sumner Trust; that was why a ward was named the "Sumner Ward". The name was retained when the original building was demolished and the Edward Wilson (Surgical) Pavilion was erected. An arrangement was made when the new wards were occupied that not more than 10% of the beds could be used for private patients. Permission was also granted by the Inspector of Charities to charge small sums for the accommodation of any of the children.

Training School for Nurses (1887).

The hospital became recognized officially as a training school for nurses in 1887. Dr. Jeffreys Wood took a great interest in the project from the beginning and fostered its development for many years. The course of training occupied three years; but it was soon lengthened to four years.

A cumulative list of the graduates used to appear in the annual reports. At the head of the list was the name of Grace Jennings Carmichael, who was in the first group to graduate from the school. She achieved literary fame. Her book "Hospital Children" (1891) and some of the verse in "Poems" (1895) belong to the story of our hospital. Her portrait is on the wall in the Nurses' Home. She was buried in Woodgrange Cemetery, East Ham, London. Each year a pilgrimage to her grave takes place on the Sunday nearest Australia Day.

Peter Bruce Bennie (1852 to 1932).

Peter Bennie, *dux* of Scotch College in 1867, was a master of arts in 1872 and headmaster of South Yarra College before he entered the medical school of the University of Melbourne. He had gained a reputation as a swimmer, high jumper and footballer. He graduated in medicine in 1878 and took the senior degree in 1884. He came to our hospital in 1882 and remained on the active staff for thirty-six years. Bennie was a brilliant scholar and teacher. He was the first great orthopædic surgeon of the hospital. For the resting of joints in splints he used mathematical exactitude. Thomas splints were fitted accurately by means of complex formulæ, and he devised bending irons and protractors for adjusting them. His system is described in his book on hip disease (1907).

According to Sir Colin MacKenzie (1932), Sir Robert Jones, in 1917, attributed the successful establishment of conservative surgery to the support obtained by the Liverpool school from two great overseas surgeons—Peter Bennie, of Melbourne, and John Ridlon, of Chicago. Bennie

was successful also with operations for the repair of cleft palates and hare lips. He was the university lecturer in *materia medica*, therapeutics, dietetics and hygiene. He was a great physician and pædiatrician. Shortly after the formation of the Melbourne Pædiatric Society, he became its president (1907). He was greatly loved and respected; many of his friends visited him in retirement at Sandringham right to the end.

Charles Snodgrass Ryan (1853 to 1926).

Charles Snodgrass Ryan was probably the best known man in Melbourne. He was a distinguished member of a Victorian pioneer family—the family of John Cotton (Mackaness, 1953). His daughter, Mrs. R. G. Casey, has continued the association with the affairs of the hospital to the present day. Those who can remember Ryan will never forget his blustering bonhomie and breeziness.

After school attendance at the Melbourne Church of England Grammar School, he went to Edinburgh, where he graduated in medicine and surgery in 1875. He then made a tour of Europe, was embroiled in the Turko-Servian war in 1876, and later served in the Turko-Russian war. He was with the besieged forces in Plevna and Erzeroum and was captured by the Russians. He was given the sobriquet "Plevna" Ryan when an account of his experiences appeared in the *Melbourne Review* (1879). As Consul for Turkey in Victoria, he continued to assist the Red Crescent for many years.

Syme (1926) and Hamilton Russell (1926) wrote tributes to his memory. Charles Ryan was a brilliant, dashing, resourceful surgeon, prepared if necessary to perform a speedy amputation, *secundum artem*, or to relieve a strangulated hernia with a pocket knife and a piece of string. Everyone was delighted when his other high honours were capped by his having conferred upon him the honour of knighthood.

Hospital Memoirs (1889 to 1894).

In 1889, Stawell, in place of Hobill Cole, joined Jeffreys Wood on the resident medical staff; 165 children with typhoid fever and 831 other children were treated in the wards that year. Patients with scarlatina and diphtheria could not be received. Attention was directed to the urgent necessity to provide a separate hospital for infectious diseases. However, that provision was not made until some fifteen years later.

Jeffreys Wood and Stawell resigned in 1890 and were replaced by Alan Mackay and R. W. Lewers. Jeffreys Wood and Stawell went together to Europe and America to gain experience and "to collect information for the benefit of this hospital" (21st report). There were some other staff changes that year. Dr. W. Dunbar Hooper and an ex-resident officer, Dr. St. John Mitchell, were added to the group of attending medical officers. Mrs. C. H. Nicolson became honorary secretary, as Mrs. A'Beckett was unable to continue in office. A large bequest was received from the estate of Francis Ormond, the founder of Ormond College and the Working Men's College. Years later, the upper medical ward in the Princess May Pavilion was named the "Ormond Ward" in honour of that prince of philanthropists.

In 1891, the honorary attending staff was again increased in numbers—from six to eight—by the appointment of Jeffreys Wood and Hamilton Russell, recently arrived from England. The volume of work at the hospital was increasing rapidly; the official bed-strength was 62, but in the past year the daily average of occupied beds was 64 (22nd report). At that time the hospital depended entirely on voluntary donations and collections without any aid from the Government. Another notable addition to the staff was Dr. Crawford H. Mollison, who became honorary pathologist. However, with the exception of autopsy examinations, he did the work elsewhere.

By 1893 the land boom had burst and the community had entered a period of severe financial upheaval and stringency. Building extensions which were deemed urgent were deferred, and the honorary treasurer had to call for "some extraordinary means" to increase the revenue (24th report). Both resident and visiting medical staffs were augmented. The hospital had the good fortune to obtain the services of Richard Stawell, who later became the leader of the profession in Australia and was President-Elect of the parent British Medical Association at the time of his death. Because of the economic depression, the quantity of work in the out-patient department was considerably increased; but many doctors assisted the regular staff to cope with it adequately.

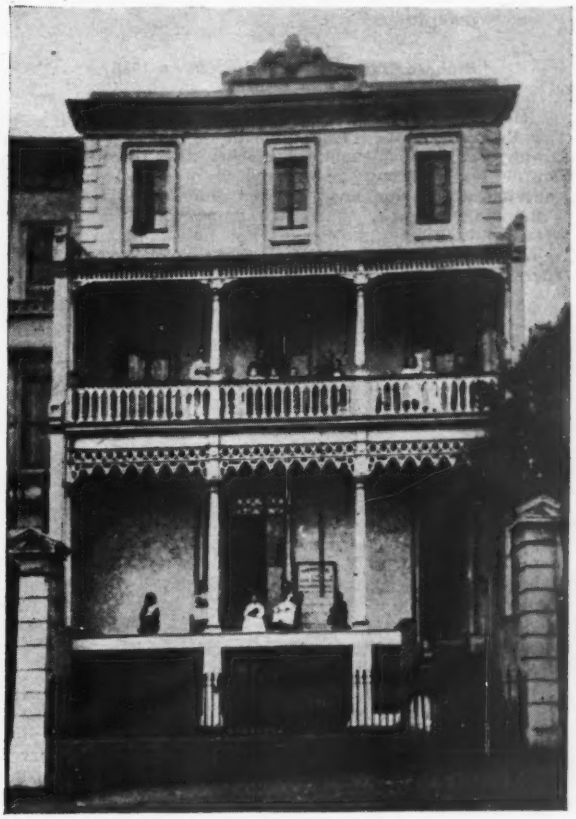

Figure II.
Temporary hospital, Spring Street, 1874.

A special appeal for funds was launched. Great assistance was given by the Press both in the city and in the country centres, and considerable progress was made. A house was leased in Rathdown Street for nurses, and thus five extra beds were available for patients. There were signs of great public interest. Annual and perpetual endowment of numerous cots was obtained. The Building Fund was growing, plans were prepared and the scene was set for another great bound forward.

Arthur Jeffreys Wood (1861 to 1937).

Arthur Jeffreys Wood was the leader of a coterie of earnest, studious and gifted doctors at 19, Collins Street. Richard Stawell, Hamilton Russell and others in the group with Wood exerted a profound influence on the local medical profession. They applied themselves to the task of grafting important scientific advances onto the more empirical practices of their seniors. For half a century Wood dominated the company he was in, and he did it with tact and kindliness. He was entirely without ostentation and embodied the friendly *camaraderie* that permeated

the whole atmosphere of the hospital. He was very observant and was ready to share his little "wrinkles" with all and sundry. He saw his hospital grow from 45 beds to 385 beds in thirty-three years, and he worked actively in it for all those years.

At the time of his death, a representative group of his colleagues testified to his unique distinction (Graham, 1937). The Jeffreys Wood Gold Medal is awarded to "the best nurse of the year" among the graduates. In 1926, a section of the new wards for babies was named after him. Those who knew him will never forget him; those tangible memorials will keep his name before the members of younger generations.

Richard Rawdon Stawell (1864 to 1935).

It is not necessary on this occasion to outline the career of Richard Rawdon Stawell; it has been done before by Dr. Rowden White (1935) and by a series of Stawell Orators. His conspicuous association with the Royal Melbourne Hospital may be allowed to overshadow his fine contribution to our hospital, and that would be wrong. From 1889, when he shared the house-work with Jeffreys Wood, until his resignation in 1914, he established a great reputation as a physician, and he became an inspiring, successful teacher.

He and Jeffreys Wood started their intertwined careers as scholars at the Hawthorn Grammar School under Professor Irving. Their courses diverted with the emergency of the war of 1914-1918. Afterwards, Stawell went on from one triumph to another in the sphere of general medicine until he reached the dizziest heights; but Wood remained a great pædiatrician.

Robert Hamilton Russell (1860 to 1933).

Robert Hamilton Russell was born at Farningham, England, in 1860. He graduated from King's College Hospital in 1882 and was house surgeon to Lister and to Playfair (Stawell, 1933). He came to Melbourne in 1890 in the belief that the climate would enable him to overcome pulmonary tuberculosis. Because of that affection, he decided not to marry. He was cured of tuberculosis, and he remained single.

In 1892, Russell was elected with Jeffreys Wood to the staff of the hospital. He held the position until he resigned in 1901 and was replaced by Hobill Cole. From 1901 until 1920, Russell concentrated on his surgical work at the Alfred Hospital. During the war of 1914-1918 he served with a British hospital in France, but he soon came back to Melbourne. He accepted reappointment as a surgeon at the Children's Hospital, as the staff required assistance then. On attaining the age of sixty years in 1920, he retired from the Alfred Hospital and agreed to extension of his term for five years at our hospital. He died under tragic circumstances in his motor car in 1933.

Hamilton Russell will be remembered as a faithful acolyte of Lister. His profound respect for Lister was reflected in his life-work. He propounded and proved the funicular theory and congenital origin of hernia. He improved the surgical treatment of urethral stricture and of hydatid cysts. He designed a method for traction treatment of fractures, and he displayed originality in other ways.

Hamilton Russell was an accomplished pianist, a perfectionist in everything he undertook. He was a talented teacher and a sincere, affectionate friend. He took particular pains to train numerous house-surgeons at both hospitals, and helped them afterwards to find a niche in private and in hospital practice.

Russell's writings on surgical subjects (1923) were numerous and of considerable merit. He was a founder of the Royal Australasian College of Surgeons. The surgeons presented him with his portrait in oils on March 24, 1930, and they honoured his memory recently at a special function (Courtice, 1953).

Hospital Memoirs (1894 to 1907).

In August, 1894, W. D. K. MacGillivray, Gerald Weigall and David Officer were reappointed resident medical officers. In order of seniority the members of the visiting staff were: Snowball, Ryan, Bennie, Jeffreys Wood, Russell, Gardner, Lempriere, Cole, Stawell, Mackay, W. A. Wood, and Wilfrid Kent Hughes. Dr. Mollison was reappointed honorary pathologist. Dr. Percy Webster became honorary oculist on the death of Dr. Aubrey Bowen in 1893; Bowen had served in that capacity from the foundation of the hospital.

Sister Danaher and Sister Thomas.

In 1894, Sister Danaher became "head nurse" under the matron, and Sister Thomas started on a long career in the out-patient department. Matilda Danaher and Maria Thomas were early graduates of our nursing school. Sister Danaher remained in charge of the Convalescent Cottage until 1922, when Sister Rail took her place.

Sister Thomas was a colourful identity and she stayed in the out-patient department until early in 1921. She and the matron, Miss Hilda Player, retired together, and Sister Thomas became Miss Player's personal attendant.

Sister Thomas was a formidable trainer of new resident doctors; her way had to be their way until they earned their emancipation. As an example, she invariably nipped the thigh of a child undergoing anæsthesia; the operation could not be commenced until she had satisfied herself that the child's leg did not twitch.

New Buildings (1898 to 1899).

In 1896, a large piece of freehold property adjoining the original holding was purchased for the erection of new buildings (27th report). The new land fronted both Rathdown Street and Drummond Street and increased the depth of the hospital grounds from Pelham Street. Plans were prepared for new kitchens and laundry and a large extension of the out-patient department. The foundation stone may still be seen from Drummond Street. It was well and truly laid on April 20, 1898, by three Victorian children in the presence of Sir John Madden (29th report). Building proceeded apace and soon the hospital was greatly improved. The increased accommodation for out-patients was greatly appreciated. New surgeries and a good dispensary were provided. Small observation wards conserved beds inside the hospital. On the Rathdown Street side, the new kitchen and steam laundry with the disinfector enhanced the essential services of the hospital. More accommodation for nurses, new wards and a pathological block were urgently needed, but could not yet be provided.

Children's Fête and Bazaar (1900).

On September 7, 1899, the honorary treasurer reported that the land and the new buildings had cost nearly £22,500 and that a little over £13,000 was required to clear the deficit in the Building Fund. Preparations were made to hold a large children's fête and bazaar. It was held in 1900. It was a very big affair and made Australian history. Mr. V. E. Henderson was the official organizer. From the Queen on her throne to the local children, everybody helped. The souvenir book (1900) is an interesting memento and contains many items of a historical nature. "The receipts amounted to £17,510 2s. 4d. and the expenses to £2,358 14s. 10d., leaving the largest balance ever attained by any similar charitable venture." (32nd report.)

The Princess May Pavilion (1902).

Thus encouraged, the committee of management went on with further building. The medical wards had to be increased in number. The Princess May Pavilion was erected on the corner of Drummond Street and Pelham Street.

Their Royal Highnesses the Duke and Duchess of Cornwall and York (later King George V and Queen Mary) opened the first Commonwealth Parliament in Melbourne. The Duchess (Princess May) visited the hospital and consented to the use of her name for the new block of wards.

The foundation stone was laid on December 20, 1901, and the pavilion was opened on May 8, 1902. The ward accommodation was thus increased by 40 beds. At last there was room for some babies, which had long been the ardent desire of Dr. Snowball. He died before the opening day, but the lower medical ward was most appropriately named the "Snowball Ward." The upper ward became the "Francis Ormond Ward". In the basement a room was provided for the Röntgen ray apparatus, together with a dark room for developing the plates. Dr. Herbert M. Hewlett took charge of the X-ray work from the outset. The new buildings cost about £11,500. "Princess May" herself endowed a cot in perpetuity. The resident medical officers at that time were H. Douglas Stephens, A. E. Rowden White, Walter Summons and Harvey Sutton. Mrs. Murray Smith became president. On the death of Dr. Snowball, Ryan became the senior member of the honorary staff and David Officer was the newly appointed junior member.

eleven years, succeeded Mr. Love in 1923, and still holds the position in 1953.

John Robertson Nurses' Home (1907).

The foundation stone of the John Robertson Nurses' Home was laid on October 17, 1906 (38th report). Accommodation was provided for 50 nurses in a fine three-storeyed building. The hospital funds had received a large bequest from the estate of John Robertson. The Nurses' Home was opened by Lady Talbot on December 13, 1907 (38th report). It still stands facing Rathdown Street. A new boiler house was also built at that time.

Edward Alan Mackay (1863 to 1944).

Edward Alan Mackay came of a pastoral family, which was uprooted from Scotland but took kindly to the Victorian soil in the early days. He had the traditional Scottish loyalty to kith and kin (Macdonald, 1944). He

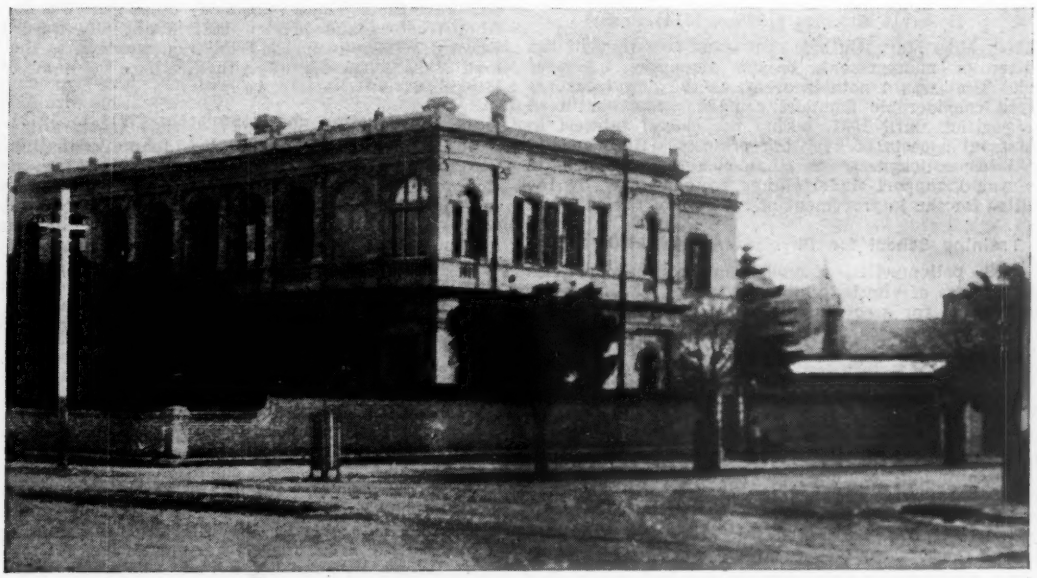

FIGURE III.
Children's Hospital, Carlton, 1887.

Office Arrangements (1904 to 1905).

Mr. Jackson was in charge of the office as secretary for twenty-three years. He had to retire on account of ill-health at the end of 1904. His regular salary was only £400 *per annum*, but latterly he had been in receipt of commission—5% of ordinary subscriptions and donations received. The collection of maintenance funds was an important part of his duties. The committee of management decided to pay him compensation on retirement. The Inspector of Charities disallowed the monthly payments to Mr. Jackson. At the height of the unpleasant controversy Mr. Jackson died, in the very week in which the Government grant was to be discontinued as an effective protest. Thereafter, no commissions have been paid for any collections for the hospital (36th report).

R. J. Love, the office clerk, became the new secretary. He held the position for twenty years and resigned to be appointed Inspector of Charities and executive officer of the Hospitals and Charities Board of Victoria. Later he held a similar post in New South Wales. Love developed the secretaryship at the Children's Hospital to the point at which he was manager and executive officer of the hospital. Mr. Howard Barrett, after being chief clerk for

was generous enough to include his school, his university college, his hospital, his colleagues and all who could claim his friendship as his "kith". Mackay joined the resident medical staff of our hospital in 1889, and later was appointed to the honorary staff as a surgeon.

In 1906, when Mackay returned from a visit to England, his friends tendered a complimentary dinner to him. That was the occasion on which the Melbourne Pædiatric Society was born. H. Douglas Stephens was the organizer of the dinner and of the society. Peter Bennie was president in 1907. The minutes have been mislaid. Was Alan Mackay our first president?

After the 1914-1918 war some surgeons, highly skilled in new techniques, became available for appointment at our hospital. On reorganization, Alan Mackay and W. A. Wood were transferred to the consulting staff. There was never a gentler or more kindly man than Alan Mackay.

Frank Hobill Cole (1863 to 1934).

Frank Hobill Cole was a reserved, scholarly, courteous man. He loved children and knew a great deal about them. He was educated at Scotch College and the University of Melbourne. Soon after graduation in 1887, he was a

resident medical officer at our hospital. He returned to the visiting staff in 1893 and served concurrently as physician and surgeon for thirty years. He practised privately in Carlton and established an enormous pædiatric reputation. Because of his precision and deep learning, he was very helpful to his assistants and colleagues and was particularly successful in the elucidation of puzzling cases. In 1926, portion of the newly built wards for babies was named after him.

He was an art collector and book lover, a scholar of diverse subjects, all of which he mastered. He took a great interest in our medical school, where he lectured for twenty-one years in *materia medica* and pharmacy. Unfortunately, in the end, Hobill Cole had to submit to lingering Parkinsonism, which disintegrated his personality and compelled his withdrawal from practice and the familiar scenes for several years before his death. His friends never wavered in their loving respect for him. Stawell (1935) and others attempted to describe him for us in the obituary notices.

Hospital Memoirs (1908 to 1914).

In 1908, Miss Mary Guthrie, honorary secretary of the committee of management, became honorary treasurer instead. That was a notable event, as the new treasurer displayed considerable financial acumen. She continued in the position until 1931, taking the closest interest in the financial aspects of very big projects. Her capacity inspired her colleagues with confidence that the general public would support undertakings recommended by the committee for the improvement of the care of the children.

Training School for Physiotherapists (1908).

In 1908, poliomyelitis assumed epidemic proportions. Large numbers of affected children strained the resources of the hospital for accommodation and for physical treatment. Many masseuses (physiotherapists) were employed, but more had to be trained. The Children's Hospital became their official training school (39th report).

Structural Completion of the Hospital (1911 to 1913).

New surgical wards, extension of the out-patient department, better accommodation for babies and a laboratory for pathology and bacteriology were the requirements before the hospital could be deemed complete. Another parcel of land in Rathdown Street was acquired. It was purchased with funds donated for the purpose by the trustees of the Edward Wilson estate (40th report). From the same source came the money to buy a block of land adjoining the cottage for convalescents at Brighton. In December, 1909, that cottage was utterly destroyed by fire, though without injury to the inmates or loss of life. A temporary home was found and a new property was purchased. The existing house on the new site was adapted and enlarged. Only the road separated the property from the foreshore at Hampton, and there was plenty of land around the house for future development (41st report). The official opening of the Convalescent Cottage, Hampton, took place on March 21, 1911. Provision was made for the housing of 30 children (42nd report).

On August 25, 1911, an ambitious building programme was announced. The original villa of Sir Redmond Barry, purchased in 1876, and the second storey of surgical wards added in 1887 would be demolished. On the site would rise the Edward Wilson (Surgical) Pavilion of two floors of wards with an operating theatre. The old isolation cottages facing Pelham Street would be removed and an administrative block would be erected between the Princess May Pavilion and the new surgical block. On one end of the administrative building, quarters would be provided for the matron, and, on the first floor, a set of rooms and offices would be supplied for the use of the resident medical staff. On the Drummond Street side, beyond the out-patient hall, a new mortuary, laboratory and lecture room would be built. A small ward block for isolation purposes on the southern boundary was also planned (42nd report).

Ways and Means (1910 to 1911).

The completion of the hospital was rendered possible by the enlargement of the area occupied by it resulting from the purchase by the Edward Wilson trustees, to which reference has already been made. The additional land had a frontage of 66 feet to Rathdown Street and a depth of the whole distance (333 feet) through to Drummond Street. The purchase price was £3600 (40th report).

A decision was made at a meeting of citizens that the completion of the Children's Hospital should be the form of public memorial to King Edward VII. The committee of management decided not to accept the scheme because of expressed disagreement by some groups in the community. Apart altogether from the National Memorial Fund, an appeal was launched for funds for the new buildings. The appeal was a great success; over £23,000 was obtained between August, 1910, and November, 1911 (43rd report). The Edward Wilson Trust contributed at least £10,000. Mrs. Poolman gave £1000 in memory of her husband, Frederick Poolman. Mr. Justice Higgins and his wife gave £500. There were many other generous donations from trustees and private individuals. A ward in the Edward Wilson (Surgical) Pavilion was named the "Poolman Ward". The operating theatre bore the name of "Ann Higgins".

Construction and Completion (1911 to 1913).

Under the presidency of Mrs. John Turnbull and the management of the zealous secretary, Mr. Love, construction proceeded apace. Three vice-regal children laid the foundation stone of the surgical block on November 20, 1911. Mrs. Murray Smith was selected for the honour of a similar ceremony for the administrative block on December 15, 1911. The new buildings were completed by August 7, 1913, and an important opening ceremony was held (45th report). The number of beds available at the main hospital had risen to 172, and the chief deficiencies had been supplied.

Pathological Department (1913).

It is of historical interest to note that, in 1911, the Edward Wilson trustees decided to establish a research for three years to investigate entero-colitis of infants bacteriologically, because the condition was responsible for a great many deaths. Dr. R. L. Forsyth, a past resident medical officer, carried out the investigations under direction from Dr. Stawell. Facilities for this first research project at the hospital were very primitive, but the results were informative and helpful. The appliances and instruments used reverted to the hospital (42nd report).

The new pathological block was complete by September, 1913. Dr. David Embelton, an ex-resident medical officer, supervised the furnishing and equipment. Embelton carried out some pathological and bacteriological work on a part-time basis for about six months. Then Dr. Reginald Webster was appointed the official pathologist. The first of a long series of reports by the pathologist was published in 1915 (45th report). Dr. Webster has become the Mary and Evelyn Burton Research Fellow and is still regularly at work at the hospital. He has participated closely in the whole of the evolution of the laboratory work, which has become extremely complex.

Honorary Medical Staff (1914).

In 1914, a new rule was applied for the appointment of members of the visiting staff. All new appointments had to be either medical or surgical and would no longer be both concurrently. Charles Ryan and Richard Stawell had resigned. Bennie, Jeffreys Wood and Cole were reappointed honorary attending physicians and surgeons to in-patients. Alan Mackay and W. A. Wood became honorary attending surgeons to in-patients. Stewart Ferguson and Hume Turnbull were appointed honorary attending physicians to in-patients. The more junior staff remained undifferentiated as honorary attending medical officers to out-patients, and they had a group of clinical assistants (45th report). Peter Bennie and Jeffreys Wood were the repre-

sentatives of the honorary medical staff on the committee of management.

SUMMARY AND CONCLUSION.[1]

The salient features of the development of our hospital of medical interest have been traced from its genesis in 1870 to the threshold of the war period, 1914-1918. Our halt at that stage is artificial; the process has never stagnated, but has been continued without interruption or cessation. Further building has occurred until there is scarcely any space for lawns and gardens such as those tastefully laid out between the buildings in 1913 to a plan devised by Mrs. Higgins. A present-day Mrs. Higgins could do the job in five minutes.

The accommodation for in-patients is now stated to be 272 beds. At the cottages for convalescents there is room for 82 children. Provision is made for 132 children at the Orthopædic Section at Frankston.

Plans are at an advanced stage to rebuild the hospital on a new site. We can visualize its shape standing in 10 acres of ground in the Royal Park, which is now on the door-step of our city. Many more acres of contiguous parkland will be laid out as playgrounds for children. Facilities will be provided in the hospital for child study, research, prevention of diseases and all the needs of the curative arts and sciences.

The professional staff has become very large, and many of its members have already given long and distinguished service. A large number will go on for many years working in a wide range of highly specialized occupations. We are supremely confident that the great traditions and inspiring examples of those who have shaped the hospital will remain with them.

ACKNOWLEDGEMENTS.

The "Annual Reports of the Children's Hospital" have been bound in volumes of a convenient size for ready reference. The 46th report (1914 to 1915) is the only one missing. I have had the advantage of using these volumes, and have quoted the appropriate report as the source of many items of information. I wish to thank Mr. Barrett for lending the volumes to me.

The illustrations have been prepared by Mr. Murphy in the Department of Photography at the Children's Hospital. Miss Rose Erck, librarian of the British Medical Association (Victorian Branch), has helped me considerably in my search for the biographical material I have used.

I count it an honour and a privilege to have been allowed to address the members of the Melbourne Pædiatric Society on this subject and on this occasion.

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[1] Since this address was delivered Her Majesty the Queen has been graciously pleased to approve the grant of the title "Royal" for the Children's Hospital, Melbourne.

APPENDIX.

Children's Hospital, Melbourne: Presidents.

1870-1871—Mrs. Perry.
1872—Mrs. Bromby.
1873-1884—Mrs. Wilberforce Stephen.
1884-1899—Mrs. Testar.
1899-1903—Mrs. A. Austin.
1903-1910—Mrs. R. Murray Smith.
1910-1911—Mrs. H. W. Staughton.
1911-1923—Mrs. John Turnbull.
1923-1933—Mrs. Lauchlan McKinnon.
1933- —Lady Latham.

BRONCHIECTASIS.[1]

By JOHN M. ALEXANDER, M.B., B.S. (Sydney), M.R.A.C.P.,
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THIS paper will deal solely with the medical aspects of bronchiectasis, and no mention will be made of treatment in which surgery plays such a large part. Furthermore, as my experience has been concerned mainly with the disease as it occurs in childhood, any remarks will apply particularly to patients in this age group.

Bronchiectasis is defined as dilatation of the bronchi and is a pathological state rather than a distinct disease entity. For example, the dilatation and distortion of the bronchi following the healing of a primary tuberculous focus have been well illustrated by Veeneklaas of Holland; but in the vast majority of these cases there were no symptoms arising from the dilatation. Again, bronchiectasis may be *seen in association with carcinoma or infection of the* bronchi and bronchioles.

However, it is the dilatation in association with chronic cough which is the particular condition under discussion.

Ætiology

Bronchiectasis in childhood is preceded by prolonged or *repeated respiratory tract infections. Table I details the* various predisposing diseases, which have been noted in 255 cases at the Royal Alexandra Hospital for children.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on November 27, 1952.

Two factors from this chart should be stressed: (i) the great preponderance of initiating illnesses dating back to the time when the child was less than two years of age—namely, 81%; (ii) the high female sex incidence, the ratio being approximately 3:2. However, when one analyses the incidence of each predisposing disease, this inequality is mainly due to pertussis (36 out of 46 cases), which for some inexplicable reason appears to be mainly a disease of females.

How do these diseases bring about permanent dilatation of the bronchi and bronchioles? Whilst there is still considerable dispute as to the exact mechanism, there appear to be two outstanding factors—(*a*) infection and (*b*) atelectasis.

With the infection the inflammatory process extends from the bronchial mucosa to the elastic and muscular tissue of the walls of the medium and smaller bronchi, with the consequent separation of this tissue by œdema and inflammatory cells. At the same time the bronchial mucosa secretes a mucopurulent exudate, which blocks the lumen of the bronchi and causes atelectasis.

TABLE I.

Diseases Predisposing to Bronchiectasis Noted at the Royal Alexandra Hospital for Children.

Causative Disease or Circumstances.	Number of Patients.	Sex.		Age (Years).
		Male.	Female.	
Bronchitis of infancy ..	78	32	46	All under 2 years.
Pertussis	46	10	36	35 under 2 years.
Pneumonia and broncho-pneumonia	46	21	25	41 under 2 years.
Pink disease	33	15	18	All under 2 years.
Measles	23	14	9	16 under 2 years.
Measles and pertussis ..	5	2	3	2 under 2 years.
Removal of tonsils and adenoids	3	1	2	1 under 2 years.
Influenza and chronic moist cough	3	0	3	All over 2 years.
Diphtheria	2	2	0	1 under 2 years.
Scarlet fever and suppurative otitis ..	2	1	1	Both over 2 years.
Chicken-pox	1	0	1	Under 2 years.
Fibrocystic disease of the pancreas	1	0	1	Under 2 years.
Insidious onset	12	4	8	
Totals	255	102	153	

The normal dilatation of the bronchial wall is produced by the inspiratory pressure and the relaxation by the elastic elements of the wall itself. This respiratory movement is only slight, and is more pronounced in the bronchioles than it is in the larger bronchi. Hence, it follows that when the elastic tissue is destroyed, so that this normal elastic recoil is lost, the bronchi become permanently dilated, and this dilatation is relatively greater in the bronchioles than in the larger bronchi.

The softening of the walls so produced paves the way to bronchiectasis, and now two other factors separately or together play a part in causing permanent dilatation—namely, (i) pressure from within the air passages and (ii) traction from without.

To deal with traction first, it was thought at one time that dilatation resulted from the shrinkage of the fibrosed peribronchial tissue; but it is now recognized that this fibrous tissue is a relatively late formation and has little or nothing to do with the initiation of the disease.

However, external respiratory traction does play a part. In a normal lung, the lung tissue absorbs the negative intrapleural pressure; but in a deflated lung the solid lung tissue loses this buffering action, and the negative intrapleural pressure is conducted directly to the bronchi, which have been weakened by infection.

Again, in childhood increased intrabronchial pressure as a result of coughing produces some effect on weakened bronchial walls. In pertussis, particularly, this is well seen, so that it is not always necessary to have actual atelectasis of a bronchus for that bronchus to become permanently dilated. It is held that only in this way can one explain the widespread nature of the lesions seen so frequently in childhood.

Finally, before leaving the subject of ætiology, one should attempt to answer the question why these predisposing illnesses do not cause bronchiectasis more frequently. All know that children sometimes have a cough for months after measles, pertussis, pneumonia *et cetera* without suffering any permanent damage to their bronchial walls. Whilst the virulence of infection undoubtedly plays some part, one must also assume that many of these children who subsequently develop bronchiectasis have congenitally weak elastic tissue in their bronchial walls—the condition which has been referred to as congenital bronchomalacia. This weakness of elastic tissue is another factor which accounts for the development of the disease at such an early age, before this tissue has become strengthened with advancing years.

Prophylaxis.

The subject of ætiology has been stressed so much because it has a direct bearing on prophylactic measures, and it is considered that far more can be done in the role of prevention of this disease than has been done heretofore.

There has been too great a tendency to accept the radiological diagnosis of "unresolved pneumonia" without question and not to recognize that in many cases the condition is one of atelectasis. In addition, too many practitioners in the past have allowed the child recovering from pertussis or measles to continue coughing for many months without radiological examination, when in many cases collapse of part of a lobe or a whole lobe would be discovered.

How long can such obstruction remain without leading to bronchiectasis? Whilst it is impossible to be dogmatic, because it depends on the age of the child and the virulence of the infection, one can state that if such obstruction is present for more than three months the chances of permanent damage are very great.

Without wishing at this time to enter into the controversy of the relative roles of bronchoscopic suction and physiotherapeutic measures in prophylaxis, I think that it is reasonable to state that the latter measures—namely, sleeping on an inclined plane, postural drill and breathing exercises—will overcome collapse in most instances, and such measures should be resorted to whenever affected areas are discovered. They offer a means of prophylaxis which everybody can carry out; but if after a reasonable time there is no clinical or radiological improvement, then bronchoscopic suction becomes a necessity. In my opinion this is a fair assessment of the part to be played by these two methods of overcoming atelectasis.

In relation to prevention there are a few other points which should be stressed.

First in the list of diseases noted at the Royal Alexandra Hospital for Children is that of bronchitis of teething. This is a disease in which the repetitive nature of the infection is more important than the isolated acute attack, and therefore efforts should be directed towards a prevention of such repetition. The main purpose here is to give such children small prophylactic doses of sulphonamides during the teething period, and in addition it should be pointed out that even at such an early age it is still possible to carry out postural drill and sleeping on an inclined plane.

Pink disease offers a very great difficulty in prevention. It is impossible to carry out physiotherapeutic methods of drainage or for that matter bronchoscopic suction on a child who is ill with pink disease. When the child's condition improves such measures can be commenced, but in many cases this is too late, and so prevention must await a more specific cure of the disease itself.

Clinical Symptoms.

Of course, the most important symptom is cough. This dates from one of the predisposing diseases previously mentioned, is loose and is constantly present. One may say that if a child shows periods of freedom from cough lasting for more than a few days, that child is not suffering from bronchiectasis. This chronicity is in pronounced distinction to the cough seen in upper respiratory tract infections, in which the freedom may last for weeks or months. However, in spite of this, the parents in 20% of cases at the Royal Alexandra Hospital for Children gave the history that the child had had tonsils or adenoids, or both, removed in an attempt to cure the cough prior to recognition of the disease.

Secondly, it is well known that in most cases of bronchiectasis there is an accompanying nasal discharge due to sinus infection; but there is no evidence that the sinusitis has caused the bronchiectasis or even made it worse. However, it is possible that the reverse may be true.

The third important symptom in childhood is the occurrence of repeated pyrexial episodes which necessitate two to three days' bed rest, and prior to the institution of treatment recur on the average every six to seven weeks. These are usually diagnosed as pneumonia, but are in reality due to further patches of atelectasis and pneumonitis. To digress for one moment, I believe that if such attacks occur after the institution of treatment, then drainage is not being carried out satisfactorily.

Clinical Signs.

Loss of weight is not present invariably, and in fact a large proportion of patients are of normal or above normal weight. Again, chest deformities such as Harrison's sulcus are seen in some, but many have a perfectly normal chest development.

Clubbing of the fingers and sometimes the toes is noted in varying degrees in the vast majority of the children, and it is noteworthy how dramatically these signs diminish with the institution of proper drainage.

Examination of the chest reveals diminution of breath sounds over the area of lung involved, and in all cases multiple crepitations are present. It is possible fairly accurately to localize the site of lesions by clinical examination; but in many cases a recent acute infection obscures the picture somewhat by producing multiple rhonchi over the remaining areas of the lung.

Bronchography.

It should be stressed once again that little reliance can be placed on a plain X-ray chest film, to determine either the localization of the lesions or whether disease is actually present. Even if the report on the plain X-ray film states that the chest appears clear but the symptoms suggest bronchiectasis, the patient should be submitted to bronchographic investigation.

From our series at the children's hospital several noteworthy features have emerged. (*a*) In 85% of cases the condition is bilateral; this factor makes the ultimate complete cure by surgery a difficult proposition. (*b*) Even when the condition is bilateral, in the vast majority of cases the left side is the more severely affected. This is probably explained by the anatomical fact that the left side is more difficult to drain than the right. (*c*) The almost complete localization to the lower lobes, the middle lobe of the right lung, and the lingular branch of the upper lobe of the left lung, points to the importance of gravity in determining the site of the lesion.

Reversibility.

Finally, I wish to say a few words concerning the reversibility of this condition. From a consideration of the ætiological factors, it is apparent that once the elastic tissue has been destroyed the condition is irreversible. However, we have now had quite a few cases at the Royal Alexandra Hospital for Children in which reasonably considerable dilatation had been present for some years, and yet with the institution of drainage the bronchi ultimately reverted to normal. Apparently in such cases the virulence of infection was not so great as to destroy the elastic tissue completely.

I think that the lesson to be learnt from this is that in cases of cylindrical bronchiectasis, at least, one should hold one's hand as regards surgery until conservative treatment has been given a reasonable trial.

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REHABILITATION AND RESETTLEMENT IN GREAT BRITAIN.[1]

By B. G. WADE,
Sydney.

I RECENTLY had the privilege of attending the first International Congress of Physical Medicine as the representative of the Australian Association of Physical Medicine. The Congress was opened by Lord Tedder, and with him on the platform were Mr. McLeod, Minister of Health, the President of the Royal College of Surgeons, the President of the Royal College of Physicians, the Mayor of Westminster, the President of the International Federation (Dr. Krusen, of the United States of America), the President of the Congress (Lord Horder), vice-presidents and members of the executive committee.

The International Federation of Physical Medicine was duly formed and a constitution and rules were adopted by the "national spokesmen" of the fifteen "member nations" present on July 13, 1952. It was resolved to hold triennial meetings in different countries, and Denmark was selected as the meeting place in 1955. This paper is based on the symposium on rehabilitation and resettlement held on the first day of the Congress and my subsequent visits to the various hospitals.

In his opening address to Congress Dr. Krusen made the following statement:

> Ten years ago the term "physical medicine" was just beginning to come into common usage. The real work of rehabilitation had not yet been evolved. There were no sections of physical medicine in any country. Treatment was largely empirical, and teaching and research almost nil.

Considering the progress made in this field, it is useful to examine what is now being done in England and compare the position prevailing in Australia at the present time.

Rehabilitation of the Sub-Standard.

After the symposium, Congress members were taken to Aldershot, where Lieutenant-Colonel J. B. Milne, of the Army Physical Training Course, explained and demonstrated the basic six weeks' physical training which preceded the specific military training for compulsory trainees. Whenever possible, all exercises are competitive and are carried out in squads of about a dozen. We were then shown a squad of 10 sub-standard recruits and the special course for them was explained. Of necessity, training must be more gradual and their physique gradually built up over six months or more. Of 20,000 rejects for "sub-standard" reasons—height, weight, physical development, mentality—75%, or 15,000, had been made fit and drafted to military training. Lieutenant-Colonel Milne stated that the average gain in weight was four pounds a week, owing to regular food, hours and exercises. This is a wonderful achievement. It was soon realized that these men should never have been allowed to reach the age of eighteen years in this poor physical condition. So the scheme was then extended to school children, and the first taken in were

[1] The substance of a paper read at the annual meeting of the Australian Association of Physical Medicine on April 14, 1953.

from schools in boroughs in which there were no parks or green belts, the only playgrounds being the streets. Under the ægis of the Research Board for the Correlation of Medical Science and Physical Education, this physical training has now been extended to all the children of primary and secondary schools. These children go to Aldershot for two weeks a year. We were shown a demonstration by both boys and girls aged eight, ten and twelve years. These children worked in small groups with a minimum of commands and were thus able to make their own pace without undue strain. These children were really amazing; the instructor stated that once the child gets confidence in his ability at that age, no further difficulties are met with in future training. The aim of the authorities is to build and train these children so that at the age of eighteen years, when they are called up for military training, there will not be one recruit rejected for "sub-standard" reasons.

The training of the children is being extended throughout England. Teachers from their schools accompany them to Aldershot to learn the methods, and then carry on the training back in their own schools. This long-range fitness campaign is a magnificent project, not only from a military point of view, but in the building up of a fit, healthy nation for the future.

We then saw a phase of the battle training of the fit recruits doing tests of endurance and skill, and what a magnificent body of fit men they were.

Rehabilitation of the Injured.

There are four main methods dealing with the different types of disability.

The Ministry of Pensions Spinal Injuries Hospital at Stoke Mandeville.

The spinal injuries hospital was established in 1944 for the treatment and rehabilitation of traumatic paraplegics whose disability was due to war injuries. It is the largest hospital of the kind in the British Empire and now has 125 beds. Civilian paraplegics, as well as service paraplegics, are now admitted and the accommodation is being continually expanded to cope with the demand due to the increasing road-accident toll.

The type of patient originally admitted to the hospital, with extensive bed sores, contractures, cystitis, a high degree of sepsis, and the mental condition of dull hopeless despair, is seldom now seen, owing to the present earlier admission. Preliminary treatment on the patient's admission to hospital is always directed to clearing any sepsis and healing bed sores. As soon as possible, intensive training is started to develop the arm, shoulder and chest muscles. Bladder drill is also instituted at once, to teach the patient to regain some control and to pass urine by suprapubic pressure. A trained patient can remain continent of urine up to four hours. Once the patients are able to lift themselves in and out of bed they graduate to a wheel chair, and the exercises continue in classes, and much is done to music with club swinging, medicine ball *et cetera*. Once they are in a wheel chair they are taken to workshops (which are extensive and varied), and they start to learn some trade for their future occupation. The types of trade taught are wood and metal turning, clock-making, book-binding, leather work, artificial jewellery making, secretarial work *et cetera*.

From the wheel chair, the patients graduate to double walking calipers and crutches. A very important point is the fitting up of lavatories to enable patients to attend to their own toilet needs. For those still in wheel chairs, sufficient room is left to wheel the chair alongside the pedestal, and then by handles and pulleys they lift themselves on and off the seat. For those using calipers, blocks are put in the floor to enable them to fix their feet and pull themselves upright. Once they are trained in their future occupation, employment in that occupation is found for them, and if their home is suitable for the use of a wheel chair, they go home. If the home is unsuitable for a wheel chair they go to one of the auxiliary homes. If they have any distance to travel, the Ministry of Pensions provides them with a motor wheel chair. There are three auxiliary centres associated with the hospital to which patients can go if their home is unsuitable. These centres are either for permanent residency or for use as convalescent depots. Recently two further centres have been equipped, making five in all.

I would strongly advise anyone visiting England, whether interested in rehabilitation or not, to visit Stoke Mandeville. It was one of the most heartening and stimulating experiences of my trip. I saw two teams in wheel chairs playing basket ball, and an archery team of girls shooting against an outside club. Four other patients on calipers were playing a really first-class game of snooker.

Garston Manor General Rehabilitation Centre.

Garston Manor general rehabilitation centre was opened in 1951 and has in-patient accommodation for 40 male and 10 female patients. The policy of the hospital is to accept patients in the National Health Scheme for from six weeks to six months. The centre has the following aims:

(i) To increase the willingness of patients to do their job.

(ii) To reduce the duration of disability.

(iii) To obtain patients early from hospital, thus reducing waiting lists.

(iv) To do this work at half the cost per occupied bed of the average hospital patient.

A review of the past six months shows that 76% have returned to their original jobs, 14% have gone to different jobs through the industrial rehabilitation units of the Ministry of Labour, and 10% have returned home at their own request for domestic reasons.

The general régime is organized on a disability basis consisting of five hours' activity a day, five days a week, divided into half-hour periods of twenty minutes' activity and ten minutes' rest. As soon as possible a patient is drafted into a class, and much of their activity is carried out to music. There are also provided a small golf course, a net-ball court, and a swimming pool which patients are encouraged to use. Dancing is an important and popular exercise.

The Birmingham Accident Hospital and Rehabilitation Centre.

The Birmingham Accident Hospital was established in 1941. All accident victims—road, industrial or domestic—are taken to hospital at once by ambulance. Preliminary treatment for shock, if necessary, is given, an X-ray picture of the injury is taken, and the patient then goes to the operating theatre, where the necessary surgical treatment is given within an hour of the original injury. It is held that by this immediate attention the disability is limited to the injury alone and not complicated by delay or inadequate after-treatment. If it is obvious that the patient cannot return to his original occupation, retraining in another field is immediately started.

An average of 200 accident patients are admitted to the hospital per day, and over 1000 per week are under treatment in physiotherapy and occupational therapy departments. Fifty thousand "acute" accident victims were treated last year, and over 80% returned to their original employment in much shorter time than from the ordinary hospital. This is an example of what can be accomplished by team work between the surgical and rehabilitation staffs. Sufficient teams are available for a twenty-four-hour service seven days a week.

Papworth Village Settlement for the Tuberculous.

Papworth Village was founded in 1914 by Sir Pendrill Varrier-Jones. He found that once a patient had left a sanatorium and again tried to earn his living in the hurly-burly of the modern world, his average expectation of life was three years. He set out to provide a community in which, after treatment in a sanatorium, patients could live and work within the limits of their disability whilst

under constant medical supervision. The settlement provides a modern hospital for the treatment of all forms of tuberculosis. When the disease is sufficiently arrested for the patient to leave hospital, a house is provided for him in the village, in which he can live with his wife and family. He then starts work in one of the many workships attached to the village, where a variety of trades are carried on—for example, printing, wood-work, leather-work, upholstery, *et cetera.*

The sale of goods produced makes the village self-supporting, and the patient is given his proportion of the profits and is thus self-supporting also. The patients print one-third of all telephone directories in England, and make a large proportion of all leather suitcases for export, and have sub-contracts for lathe work and upholstery for motor-car bodies *et cetera.* The patient starts with two hours' work a day and is carefully watched for any increased tiredness or rise of temperature. The maximum period for which any patient works is a three-hour shift, and this is followed by compulsory rest. X-ray and sputum tests are carried out on all occupants of the village once a month, whether patients or not. The village is completely self-contained and self-supporting. It has its own churches, schools, recreation halls, libraries and playing fields. The director said that not one case of tuberculosis had been found among the children born and living in the village since its foundation. Many patients have been working steadily there for over twenty years. New houses are built by patients when materials and men are available. As may be expected, the applicants for admission far exceed the accommodation available. It is a cheerful, happy place, in which the patient leads a normal life with his wife and family, and is freed from anxiety as to their future should he again break down and be unable to work.

Rehabilitation of the Aged.

The Churchill Geriatric Hospital at Oxford gives an example of the work done in rehabilitation of the aged. The bulk of the patients admitted are suffering from osteoarthritis of the hip and knees, fractured femurs, varicose ulcers, hemiplegia and foot deformities.

All intracapsular fractures are pinned at once, exercises are started on the second day, and the patient is out of bed on crutches in two weeks.

Varicose ulcers are treated by the Visgard method with great success.

The hemiplegics are trained to make themselves self-supporting by intensive exercises and training.

Contractures of knees or hips are straightened by constant hydraulic pressure. I saw several patients being treated by this method; the patient lies on his side, a long rigid bar behind the leg and a sling across the knees, which is tightened by hydraulic pressure. They stated that the method was very successful and painless.

Rehabilitation of the Rheumatoid Arthritic.

The great problem in the rehabilitation of the convalescent or "burnt out" rheumatoid arthritis patient is to make him self-supporting when he returns home. A great step forward in this field has been the supplying of various "aids" and "gadgets" to enable these patients to perform simple household tasks. As an example, many occupational therapy departments have a room in which are examples of all types of door handles, taps (water and gas), electric light switches, pots and pans for the stove, *et cetera.* When a female patient is ready to go home she is taken round this room and asked if she can turn door knobs, turn on the tap, *et cetera.* For the things she is unable to do she is given an aid. These aids are nearly all made in the occupational therapy department by the staff and patients, and many valuable suggestions have been made by the patients themselves. The patient is then accompanied home by an occupational therapist and a technician. Whenever possible, the kitchen stove, sink *et cetera* are remodelled, to have everything on one level and at a height to suit her. An important point is to have the toilet pedestal adjusted so that she can use it in comfort. The mental uplift to the patient in knowing that she can look after herself and not be dependent is tremendous. The aids are legion and offer unlimited scope for the ingenuity of the doctor and the occupational therapist. The following are a few: (i) for the round door knob, a circle of metal lined with rubber with a long handle each side; (ii) a long handle with a slot in the end to turn on the gas tap in the stove; (iii) a long-handled claw to turn on a water tap; (iv) a knife with the blade in the centre and a handle both ends; (v) long-handled pliers to clip on the sides of shoes and pull them on; (vi) mechanical tin openers and vegetable peelers; (vii) spoons and forks with a spring clip to clamp them to the wrist; (viii) a double-handled cup; (ix) a carrot-shaped wooden plug for dialling numbers on the telephone.

At King's College Hospital, Dr. Cooksey has evolved a kitchen unit with the oven, burners and refrigerator all on the one level with the sink. All pots *et cetera* can be pushed round with no lifting; heavy saucepans with ball bearings are used to enable them to be pushed easily. Prepared food is slid down an inclined plane to a trolley and wheeled to the table. A metal rail is attached to the ceiling and arm slings are attached to wheels on the rail, in which the patient can place her forearms and thus have all the weight taken on the sling, at the same time moving around.

I saw a girl cooking a dinner for eight occupational therapists in the department. As a result of poliomyelitis, her left upper limb and shoulder were completely paralysed and her right arm and shoulder; good power was present in her right forearm and hand only. By means of slings for her right arm she cooked a three-course dinner for the occupational therapy staff twice a week on this special stove. It was an amazing performance. There are two revolving cupboards on the sink with a ramp down which the patient can slide any bottle or jar she requires without lifting it. The water tap is of the movable goose-neck type, which can be swung so that saucepans can be filled without being held in the sink. The water is turned on by foot or knee treadles. Many devices fit into the table for peeling vegetables, mixing, *et cetera.* The kitchen stool has a sloping seat to enable the patient to recline on it rather than sit.

The Conditions in Australia.

I do not know of any scheme in Australia by which the sub-standard trainee is taken in hand and built up into a fit individual. This work in Australia could come under the control of the education authorities. A more intensive and carefully controlled system of physical training in all primary and secondary schools is required.

A few specially selected physical training instructors could be sent to Aldershot to study the methods in use there, and on their return train teachers in the schools in their methods. Special attention should be given to children who appear unable to compete on equal terms with others in their age group. This aspect of rehabilitation is of outstanding importance, as it is axiomatic that healthy, well-developed children are the greatest asset a nation can have.

Spinal Paraplegia.

There are no special hospitals in Australia for treating paraplegics. Patients are admitted to wards of a general hospital and rehabilitated from there, but there is nothing approaching Stoke Mandeville. The results there are amazing.

General Rehabilitation Centres.

I know of only three rehabilitation centres in New South Wales, one at Jervis Bay and one at Clovelly, and one maintained by the Joint Coal Board where general rehabilitation work is carried out. The outstanding difference between England and Australia is that in England, as soon as it is obvious that the injured person cannot return to his original employment, he starts training at once for another job, and work is found for him in his new sphere as soon as he is ready for it. He again becomes

a unit in the country's productive economy and is not a drone subsisting on a pension.

In Australia the *Workers' Compensation Act* in each State lays down fixed sums in compensation for such severe disabilities as loss of an arm or hand *et cetera*. The injured person is given that sum and in the great majority of cases then left to his own devices to find something he can do. There is no automatic training for a fresh start in life as in many of the rehabilitation centres in England. The Birmingham Accident and Rehabilitation Centre is an example of this.

The importance of treatment and after-care of the tuberculous patient is recognized in Australia, and great advances have been made in recent years. A settlement on the lines of the Papworth Village Settlement would be of inestimable value in this work.

The rehabilitation of the rheumatoid arthritis patient lags far behind England. There are no occupational therapy departments in any of the hospitals which have special rheumatism clinics to which the patients can go and be supplied with mechanical aids. By making them independent, we free some member of the family for productive work who otherwise would have to stay at home to look after them. The improvement in both the mental and physical condition of patients helped in this way is more than half the battle in treatment. I most strongly urge hospitals to establish something along these lines, as it is really an essential part of the treatment.

The Royal College of Physicians and the Royal College of Surgeons of England have established a combined diploma in physical medicine. This is based on a two-year course; the student on obtaining his diploma of physical medicine of the combined colleges is then appointed to the physiotherapy department of a hospital or group of hospitals. As a result the general patients in hospital derive much greater benefit from physiotherapy than patients in hospital in Australia. Rehabilitation is part of this diploma course.

It is well recognized overseas that no physiotherapy department can function efficiently to the maximum degree unless it is under a specialist in physical medicine who is aware of the subject in its broadest sense.

The Australian physiotherapists are equal to any in the world in the soundness of their training and general competence. The difficulties here are, firstly, that there are insufficient specialists in physical medicine in Australia, and secondly that even when men are available the physiotherapists are frequently placed under the control of the orthopædic department, and their talents for anything but orthopædic work are thus wasted.

Undergraduate training in physical medicine must precede post-graduate training, and the first step should be to see that all medical students are given during their course at least some instruction in physical medicine—in indications and contraindications, if not in technique.

Only those visiting the London hospitals will realize how much the Australian hospitals are lacking in the extent to which physiotherapy which is available in Australia is used.

Summary.

1. Out of 2000 sub-standard recruits in England, 1500 were rendered fit for training. The training scheme has been extended to all school children, and it is confidently expected that in ten years there will not be one sub-standard individual reaching the age of eighteen years.

2. A description of the treatment and training of the traumatic paraplegic at Stoke Mandeville is given.

3. A description of general rehabilitation training as carried out at Garston Manor is outlined.

4. Papworth Village Settlement for the Tuberculous is cited as an example of the ideal settlement for the tuberculosis sufferer.

5. "Gadgets" to help the rheumatoid arthritic are explained, and a plea is made for the establishment of rehabilitation departments in Australian hospitals.

6. Finally, a comparison is given between physiotherapy and physical medicine in England and in Australia.

TUBERCULOUS INFECTION AND ITS SOURCE IN PRIMARY SCHOOL CHILDREN.

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THE purpose of this study was threefold: (i) To find out what proportion of primary school children in Sydney reacted to a tuberculin skin test. (ii) To examine those children who reacted to the tuberculin test for evidence of tuberculous infection. (iii) To ascertain in how many of these children a human source of infection could be established by obtaining a history of exposure to tuberculous infection and by examining the adults with whom they lived in an attempt to discover adults suffering from previously unsuspected pulmonary tuberculosis.

In 1951, with the cooperation of Dr. A. E. Machin, the Director, School Medical Service, Department of Public Health, New South Wales, a Mantoux test was performed on 6099 primary school children in Sydney, aged from four to twelve years. Of these children 2573 attended schools in an inner industrial area, and 3526 attended schools in an outer suburban residential area.

The tests on the children in the inner industrial area were carried out in conjunction with Dr. R. M. de Lambert, of the Chest Survey Unit of the School of Public Health and Tropical Medicine.

The tuberculin used was old tuberculin (Commonwealth Serum Laboratories) diluted on the day of the test with normal saline to 1:1000. The test dose was 0·1 millilitre injected intradermally on the volar aspect of the left forearm. The reaction was read three days later. Palpable induration with a diameter greater than five millimetres was regarded as a positive reaction. Doubtful reactors were retested with 1:100 old tuberculin.

Three visits were made to each school at three-day intervals. On the first visit, children whose parents had signed the consent form were tested. At the second visit the results of the first day's tests were read. Children present at this visit who had been absent on the first day were tested. On the third visit the results of the second day's tests were read and that of the occasional child who was tested on the first visit but was absent on the second (that is, the result of the test was read on the sixth day); if any doubt existed, arrangements were made for retesting.

The parents of each child tested were notified of the result. The parents of children who reacted to the test were invited to telephone the medical social worker of the Institute of Child Health, or were visited by her to make arrangements for the clinical and radiological examination of the child. The parent was asked if the child had ever lived with or had been closely associated with an adult suffering from pulmonary tuberculosis. An appointment was made for the family and other members of the household to attend the School of Public Health and Tropical Medicine for investigation. All who attended were given a Mantoux test. A chest radiograph was taken of all persons over the age of thirteen years, but only of children if they reacted to the Mantoux test.

The staff of the Chest Survey Unit of the School of Public Health and Tropical Medicine performed these Mantoux tests and the chest radiography.

The first 50 children who reacted were studied in detail. A full medical history was taken and a complete clinical examination performed together with microscopic examination of the urine. It was found that physical examination did not yield further information in those children who did

not have suggestive symptoms in the history or abnormal findings in the chest radiograph. A full history was taken of the next 50 reactors, but physical examination was performed only when indicated and the urine was tested for albumin and sugar only. Subsequently, based on the above experience, a relevant history was taken, but physical examination was performed only when indicated.

Children and adults in whom any abnormality was found were referred to their own doctor or a clinic of the parents' choice. The parents of children in whom no abnormality was found were reassured and advised to consult their family doctor should symptoms occur. With the permission of the parent, the details of the investigations were sent to the family doctor. Investigation of a family was considered incomplete if the chest of any adult living with the family was not radiographed.

Results.

Inner Industrial Area.

Seven schools with an effective enrolment of 3592 were visited in an inner industrial area (Cleveland Street, George Street Redfern, Darlington, Glebe, Camperdown, North Newtown and King Street Newtown) and 2573 children (72%) were tested. A second series of visits was planned for these schools later in 1951 to give children who had been absent an opportunity to be tested. However, the response was so poor at the first school revisited that the plan was abandoned.

Twelve children who reacted to the Mantoux test had been vaccinated with B.C.G. and were excluded from the following results.

One hundred and eighty-seven children (7·3%) reacted to the Mantoux test. Of 163 migrant children tested 25 reacted (15%), leaving 162 native-born Australian children who reacted. Figure I demonstrates how the percentage of reactors in the native-born Australian children in this area rose significantly with age.

In the inner industrial area the families of 10 children who reacted failed to attend for investigation. Another 19 children and their families either were radiographed elsewhere, or were already attending chest clinics as known "contacts".

Some families cooperated to the extent of coming for tuberculin-testing and radiography, but did not come back for the results, so that a history of the child's previous illnesses could not be obtained. Some migrant families could not speak English, and in the absence of an interpreter a history could not be taken. Of 139 children, migrant and native-born, from whose parents a medical history was taken, 35 had suffered from one or more bouts of pneumonia, 27 had suffered from *otitis media*, and none had suffered from acute rheumatic fever.

The chest radiographs were reviewed of 139 native-born Australian children who reacted to the Mantoux test. Calcification in the parenchyma or hilus was noted in the radiographs of 24. The diagnosis of calcification in the chest radiograph was made when the characteristic opacities of uneven contour and varying density were present. The rounded opacities of uniform density caused by blood vessels on end were excluded. The presence of calcification bore no significant relationship to the knowledge of a source of infection.

Of the 187 children who reacted to the Mantoux test eight were referred for investigation to their family doctors or clinics with the following provisional diagnoses: apparently recent primary complex in the thorax, 3; probably old primary complex in the thorax not yet calcified, 5.

A probable source of infection was established for 65 of the 162 native-born children, and in 42 of these it was in the home. Of 89 families completely investigated a probable source of infection for the child was established in 40, and of 73 families incompletely investigated a probable source of infection was established in 25.

As a result of this survey nine adults were referred to their family doctors or chest clinics for investigation of radiographic abnormalities which were considered to be probably tuberculous in origin.

Following are brief notes on the nine adults referred.

CASE I.—The patient was a woman, aged thirty-five years, the mother of a school child who reacted to the Mantoux test; the report on her chest X-ray examination was as follows: "Many irregular small nodular and linear areas of opacity in the right upper zone extending down to the second interspace in front, and in the left mid zone. Appearances suggest a chronic fibro-caseous tuberculous process." She was referred to a chest clinic. In May, 1951, culture of her gastric contents produced two colonies of acid-fast bacilli. Six subsequent cultures produced no growth. The radiological appearances remained stable until after the birth of a baby

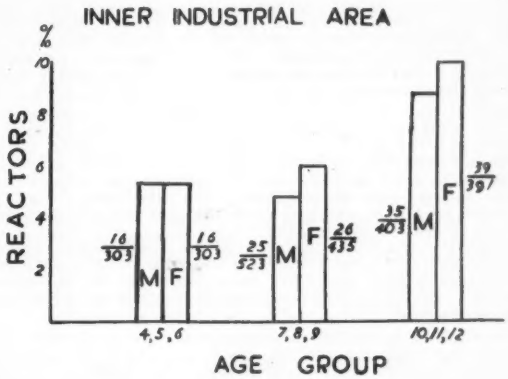

FIGURE I.

The percentage of primary school children in an inner industrial area of Sydney, by sex and age groups, reacting to a Mantoux test. The number of children reacting from the total number tested, for each sex of that age group, is shown as a fraction beside the appropriate column.

in August, 1952, following which the lesion became unstable and extended. The final diagnosis was active pulmonary tuberculosis.

CASE II.—The patient was a woman, aged thirty-nine years, the mother of a school child who reacted to the Mantoux test; the report on her chest X-ray examination was as follows: "Nodular and linear opacities in the right apex with a few points of calcification." The results of culture and guinea-pig inoculation of her gastric contents were negative for tubercle bacilli. Progress X-ray examinations of her chest have shown the lesion to be unstable with possible cavitation. The final diagnosis was active pulmonary tuberculosis.

CASE III.—The patient was a woman, aged twenty-one years, sister of a school child who reacted to the Mantoux test; the report on her chest X-ray examination was as follows: "Many fine nodular and linear opacities are evident in both upper zones, more on the left side, and there is evidence of upward retraction of the hilus on this side. The appearances are characteristic of a minimal predominantly productive tuberculous process of the 're-infection' type." The patient did not cooperate further. A letter was sent to her family doctor, who did not reply. The provisional diagnosis was pulmonary tuberculosis.

CASE IV.—The patient was a young woman, aged seventeen years, a friend living in the home of a school child who reacted to the Mantoux test. She had suffered from pleurisy two months previously. The report of her chest X-ray examination was as follows: "Crowding of the broncho-vascular pattern in the R. mid-zone with appearances of a fibrotic process in the apical segment of the lower lobe seen in the lateral view. Calcification is present in this area, suggesting a tuberculous ætiology." She was referred to a chest clinic, but she did not report there. There is no further information.

CASE V.—The patient was a man, aged forty years, the father of a school child who reacted to the Mantoux test. His wife had died suffering from pulmonary tuberculosis in 1950. The report on his chest X-ray examination was as follows: "Some areas of opacity in the L. upper zone medially suggest the likelihood of a limited fibro-caseous tuberculous process. No definite evidence of cavitation and

the appearances suggest an old standing predominantly fibrotic lesion." He was referred to a chest clinic. In July, 1951, one culture of his sputum produced acid-fast bacilli, but subsequent cultures did not confirm this. Progress X-ray examinations of his chest suggested that the lesion was inactive.

CASE VI.—The patient was a woman, aged forty-six years, the mother of a school child who reacted to the Mantoux test. She had suffered from recurrent pleurisy for ten years. The report of her chest X-ray examination was as follows: "Pleural thickening and some fibrosis in the L. mid zone." She was referred to a chest clinic, where the final diagnosis was recurrent pleurisy, possibly tuberculous.

CASE VII.—The patient was a man, aged fifty-three years, the father of a school child who reacted to the Mantoux test. The report of his chest X-ray examination was as follows: "Fibrosis and pleural thickening in the L. apex with small opacity in L. subapical area. Irregular opacity about two or three centimetres in diameter superimposed on the heart shadow above L. diaphragm." He was referred to his family doctor for further investigation. His family doctor wrote saying the provisional diagnosis was "a quiescent tuberculous lesion".

CASE VIII.—The patient was a woman, aged thirty-four years, the mother of a school child who reacted to the Mantoux test, and who was found to be suffering from a tuberculous primary complex. The mother and her child had been in close contact until two years previously with three families in all of which there had been an adult suffering from pulmonary tuberculosis. The report on her chest X-ray examination was as follows: "Appearances suggest collapse of R. lower lobe." She was referred to a chest clinic where after observation the final diagnosis was "no significant disease". However, neither bronchoscopy nor bronchography was performed.

CASE IX.—The patient was a woman, aged forty-five years, the mother of a school child who reacted to a Mantoux test. She had suffered from vague ill-health for some years. The report on her chest X-ray examination was as follows: "Small areas of irregular opacity in L. upper zone towards axilla with some calcification. There is slight opacity in R. apex and apical pleural thickening." She was referred to a chest clinic, where the final diagnosis was "indeterminate lung lesion".

Thus of the nine patients referred, active disease was present in two (Cases I and II). Two more were probably suffering from active disease, but they did not cooperate in further investigations (Cases III and IV). Of the other five, if tuberculosis was the underlying disease in any, it was probably of minimal activity.

Outer Suburban Residential Area.

Seven schools with an effective enrolment of 4016 were visited in an outer suburban residential area (Normanhurst, Thornleigh, Pennant Hills, Beecroft, Epping, Eastwood, Ryde), and these schools were visited again some months later to test 306 children who had been absent on the first occasion. Altogether 3526 children (88%) were tested.

Nine children who reacted to the Mantoux test had been vaccinated with B.C.G. and are excluded from the following results.

One hundred and forty-six children (4·1%) reacted to the Mantoux test. Of 107 migrant children tested 16 (15%) reacted, leaving 130 native-born Australian children who reacted. It will be shown later that the 3526 children tested were a true cross-section of primary school children in this area.

Figure II demonstrates that the percentage of reactors among the native-born children in this area did not rise with age.

In the outer suburban residential area the families of seven children who reacted failed to attend for investigation; 17 children and their families were radiographed elsewhere.

Of the 146 children who reacted to the Mantoux test the provisional diagnosis of recent primary complex was made in one and that of tuberculosis of the spine in another child, who was admitted to hospital at the request of her family doctor.

A review of the medical histories of 118 children who reacted to the Mantoux test revealed that six had suffered from pneumonia, nine from *otitis media*, one from *erythema nodosum* followed by acute rheumatic fever and two from acute rheumatic fever.

The chest radiographs of 102 native-born Australian children who reacted to the Mantoux test were reviewed; calcification was noted in nine.

The chest radiographs of 39 migrant children from the two areas who reacted to the Mantoux test were reviewed; calcification was noted in five.

A probable source of infection was established for 39 of the 130 native-born children, and in 25 of these it was in the home. Of 82 families completely investigated a

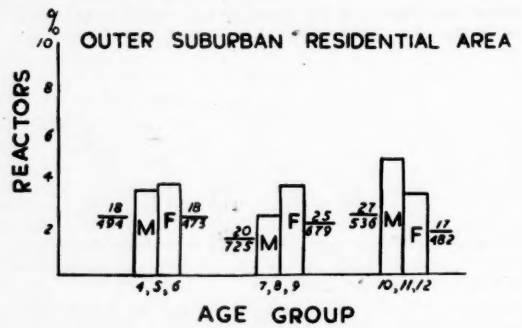

FIGURE II.

The percentage of primary school children in an outer suburban residential area of Sydney, by sex and age groups, reacting to a Mantoux test. The number of children reacting from the total number tested, for each sex of that age group, is shown as a fraction beside the appropriate column.

probable source of infection for the child was established in 26, and of 48 families not completely investigated a probable source was established in 13.

Five adults were referred to their family doctors or chest clinics for investigation of radiographic abnormalities which were considered to be probably tuberculous in origin.

In addition, the positive Mantoux reaction of her child caused another mother to attend her doctor again, and she was found to be suffering from active pulmonary tuberculosis, whereas she formerly had believed that her condition was arrested.

Following are brief notes on the five adults referred.

CASE I.—The patient was a woman, aged seventy-nine years, the grandmother living in the home of a school child who reacted to the Mantoux test. The report on her chest X-ray examination was as follows: "Gross scoliosis, ill defined opacities in both apices, and R. costophrenic angle." Culture of her sputum produced acid-fast bacilli. The final diagnosis was active pulmonary tuberculosis.

CASE II.—The patient was a woman, aged thirty-seven years, the mother of a school child who reacted to the Mantoux test. Her cousin had died suffering from pulmonary tuberculosis three months previously. The report on her chest X-ray examination was as follows: "Faint linear and nodular opacities at both apices consistent with old inactive infection." She was referred to her family doctor, who left the district soon after, and no further information is available.

CASE III.—The patient was a woman, aged thirty-seven years, the mother of a school child who reacted to the Mantoux test. The report of her chest X-ray examination was as follows: "Small discrete opacities in L. upper zone: one larger opacity about one centimetre in diameter." She was referred to a chest clinic, where culture of her gastric contents did not produce tubercle bacilli. The final diagnosis was inactive tuberculosis.

CASE IV.—The patient was a woman, aged forty-one years, the mother of a school child who reacted to the Mantoux test. Her husband has a moderately extensive calcified tuberculous lesion of his lungs considered inactive for many years. The report on her chest X-ray examination was as follows: "A few small nodular opacities at the extreme L. apex, most probably of no clinical significance." She was

referred to her family doctor, and no further information is available.

CASE V.—The patient was a woman, aged fifty-four years, the grandmother living in the home of a school child who reacted to the Mantoux test. The report on her chest X-ray examination was as follows: "Irregular opacities in L. apex and both subclavicular regions consistent with minimal productive tuberculosis." There is no more information, as the patient did not cooperate further.

Thus of the five adults referred, two were suffering from significant disease, one (Case I) was suffering from active pulmonary tuberculosis, and the condition of another was probably active (Case V).

The above findings are summarized in Table I.

TABLE I.
Table of Comparisons.

Item Investigated.	Inner Industrial Area.	Outer Suburban Residential Area.
Number of children enrolled at schools visited	3592	4016
Number of children tested	2573	3526
Percentage of children tested	72	88
Number of reactors	187	146
Percentage of reactors	7·3	4·1
Native-born Australian children—		
Number of reactors:		
Aged 4 to 6 years:		
Male	16 (5·3%)	18 (3·6%)
Female	16 (5·3%)	18 (3·8%)
Aged 7 to 9 years:		
Male	25 (4·8%)	20 (2·8%)
Female	26 (6·0%)	25 (3·7%)
Aged 10 to 12 years:		
Male	35 (8·7%)	27 (5·0%)
Female	39 (10·0%)	17 (3·5%)
Migrant children—		
Number of reactors, all ages, both sexes	25 (15·0%)	16 (15·0%)
Number of reactors referred—		
Primary tuberculous complex in the thorax	8	1
Tuberculosis of the spine	—	1
Number of adults referred for investigation	9	5

Secondary School Pupils.

Five hundred and nineteen secondary school pupils between eleven and fifteen years of age, were tested at schools in an inner industrial area (George Street Redfern, Glebe, North Newtown and King Street Newtown).

Of 513 native-born Australian children 71 (14%) reacted, and of six migrant children five reacted.

These figures have not been incorporated in the above results, for many of these children travelled to school from distant suburbs.

Two adults, contacts of these children, were referred to chest clinics for investigation of abnormalities which were considered probably to be tuberculous in origin.

Following is a résumé of their case histories.

CASE I.—The patient was a man, aged fifty-one years, the father of a school child who reacted to the Mantoux test. The father's uncle had died suffering from pulmonary tuberculosis many years before, and his sister suffered from a "spot on the lung" as a girl. The report on his chest X-ray examination was as follows: "R. lung: Emphysema of the lung with pleural thickening at apex and some diffuse fibrosis in the lower half of the lung. L. lung: Similar changes as the right, also there is possibly a small cavity within an area of opacity in the left subapical region: tomography and careful bacteriological examination are suggested." He was referred to a chest clinic. Acid-fast bacilli were demonstrated in one concentrated specimen of his sputum, but numerous subsequent smears and culture of his sputum did not confirm this. Tomography did not demonstrate a cavity. The provisional diagnosis was "pulmonary fibrosis, for regular review".

CASE II.—The patient was a man, aged forty-one years, the father of a school child who reacted to the Mantoux test. His father died suffering from silicosis, and his brother recently developed pulmonary tuberculosis in New Guinea. The report on his chest X-ray examination was as follows: "Some fibrosis of both apical regions, accompanied by pleural apical thickening and areas of bullous emphysema." He was referred to a chest clinic. Numerous cultures of his sputum did not produce acid-fast bacilli. The lesion remained stable on subsequent chest X-ray examinations. The provisional diagnosis was "lung cysts".

Survey of Children Not Tested in the Outer Suburban Residential Area.

The medical social worker of The Institute of Child Health interviewed the parents of 65 children in the outer suburban residential area who were not tested. These were not a select group, except in that the children were from three schools and the parents of another 11 children were out on two visits.

The parents of 42 were willing that their children have the test, but absence from school had prevented its performance. The parents of 19 children, represented by 14 families, disapproved of the test; apparently none of these children had been in contact with a person known to be suffering from tuberculosis. The parents of four children stated that the children had been tested elsewhere.

If these results are applied to the 490 children not tested in the outer suburban residential area, there were 317 children not tested whose parents were willing that they should be tested. Adding the 317 to the 3526 tested gives a total of 3843 children whose parents were willing. This is 96% of the effective enrolment. By the same reasoning, the parents of 3% of children were unwilling, and 1% of children had been tested elsewhere.

Discussion.

Since the studies of Douglas Anderson (1940) the only published tuberculin survey performed within the borders of New South Wales is that of M. G. Pinner (1950) in the Australian Capital Territory and Queanbeyan. The percentage of children reacting in the outer suburban residential area is similar to that found by Pinner, and by Kerr (1949) in Bendigo (Victoria). The percentage of children reacting in the inner industrial area of Sydney in 1951 is higher than that found by Pinner and Kerr, but lower than that found by Anderson for Sydney children in 1938. Anderson found that of 187 school children, aged five to nine years, tested, 34 reacted, and of 682 school children, aged ten to fourteen years, tested, 146 reacted.

It is interesting to note that of 139 children in the inner industrial area, 35 had suffered from pneumonia and 27 from *otitis media*, whereas of 118 children in the outer suburban residential area, six had suffered from pneumonia and nine from *otitis media*.

Webster (1952) described five cases of so-called "tuberculous rheumatism". Accordingly it is of interest to note that none of 139 children from the inner industrial area and three of 118 children from the outer suburban residential area had suffered from rheumatic fever. One of these three had suffered from *erythema nodosum* as an initial symptom of rheumatic fever.

The presence of calcification in the chest radiographs of a significantly higher proportion of children from the inner industrial area than the outer suburban residential area might be accounted for by a higher incidence of bovine infection in the outer suburban area. Milk supplied to the inner industrial area is pasteurized. Milk supplied to the outer suburban residential area either is pasteurized or comes from local dairy herds which are required to be tuberculin-tested. In 1952 tubercle bacilli were cultured from the milk from two dairies in the outer suburban residential area (Watts, 1952).

It is possible that a bovine infection was responsible for the same tuberculin rate in the younger age groups as in the older age groups in the outer suburban residential area.

Of the 14 adults referred for investigation it is noteworthy that none were expectorating sputum in which tubercle bacilli could be demonstrated on direct smear examination. Past tuberculous infection could be invoked as a reasonable explanation for the changes seen in the chest radiographs of those adults referred. However,

probably only six were suffering from active disease. Pinner (1950), in investigating the families of 187 children who reacted to a Mantoux test, found three adults suffering from unsuspected pulmonary tuberculosis. However, as in the present series, tubercle bacilli were not demonstrated by direct smear examination in sputum of these three adults, but activity was established by cultural methods or by progressive radiological observations.

Summary.

In 1951 a tuberculin survey was performed on some 6000 primary school children in Sydney. The children who reacted to the Mantoux test and their families were invited to be examined for evidence of tuberculous infection. A history of exposure to tuberculous infection was sought.

In an inner industrial area 7% of children reacted; eight children were found to be suffering from a primary complex in the thorax. A probable source of infection was established for just over one-third of the children who reacted. Nine adults with radiographic abnormalities considered to be probably tuberculous in origin were referred for investigation; two of these were suffering, and two were probably suffering, from active tuberculosis, previously unsuspected.

In an outer suburban residential area 4% of children reacted; one child was found to be suffering from a primary complex in the thorax and another from tuberculosis of the spine. A probable source of infection was established for just under one-third of the children who reacted. Five adults with radiographic abnormalities considered to be probably tuberculous in origin were referred for investigation; one of these was suffering, and another was probably suffering, from active tuberculosis, previously unsuspected.

Calcification was less common in the chest radiographs of children from the outer suburban residential area, a finding which suggests that more children in this area may have been infected by the alimentary route. Tubercle bacilli were recovered from the milk of two dairies in this area in 1952.

Acknowledgements.

I should like to thank Dr. A. E. Machin, Director of the School Medical Service, Department of Public Health, New South Wales, for making this survey possible.

This study was planned in conjunction with Dr. R. M. de Lambert, of the Chest Survey Unit of the School of Public Health and Tropical Medicine, and the first part of it was carried out conjointly with him. I wish to acknowledge how much I learnt from Dr. de Lambert in those early months.

When Dr. de Lambert retired, Sister B. Marshall Jones, of The Institute of Child Health, assisted with the tuberculin-testing of the school children, and Sister N. Holloway and the staff of the Chest Survey Unit continued to perform the tuberculin-testing and the chest radiography of contacts of the reactors. I wish to thank them.

The cooperation of the families of reactors resulted from the efforts of Miss P. E. Grave, medical social worker of The Institute of Child Health, and I should like to emphasize the important part she played in this investigation.

Advice from Mr. R. M. Watts, Principal Veterinary Officer, Department of Agriculture, New South Wales, on bovine infection in dairy herds is gratefully acknowledged.

I should like to thank Professor Lorimer Dods, Director of The Institute of Child Health, for his constant encouragement, and Dr. F. W. Clements for his guidance.

This work is published with the support of the Director of the School of Public Health and Tropical Medicine, Professor Edward Ford, who welcomed the clatter of noisy feet in the august passageways of his school.

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Reviews.

Basic Principles of Cancer Practice: A Book on Diagnosis, Prognosis, and Treatment of Human Neoplasms for the General Practitioner and Medical Student. By Anderson Nettleship, M.D., F.A.C.P.; 1952. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6½", pp. 408, with 106 illustrations. Price: 75s. 3d.

ANDERSON NETTLESHIP, in his "Basic Principles of Cancer Practice", attempts to cover a large field in some four hundred small pages. The first hundred are devoted to a general survey of neoplasia, and set out clinical and pathological behaviour, diagnosis and treatment; they contain much valuable material. Thence each system of the body is considered from the point of view of early and late symptoms, diagnosis, treatment and prognosis. Throughout, the author stresses an approach to cancer by knowledge of the natural history of the disease, with a fervent plea for practitioners to be on their guard to suspect and to diagnose early malignant disease, and when in doubt to perform biopsy—teachings to be admired.

However, we think that Dr. Nettleship has tried to put too much material into too small a space, and as a result the book is difficult to read and jumpy in style, and contains much repetition. Surgical procedures are not mentioned in any detail. Radiotherapeutic doses and techniques in general are not as would be employed in Australia. Considerable space is devoted to case histories, whilst scant attention is paid to palliation of advanced malignant disease, or to the sites where metastases most often appear for each new growth. The common ovarian tumours and those of the ear, nose and throat are hardly dealt with in sufficient detail. Few consultants would agree with the author's treatment of carcinoma of the skin, lip and tongue, or with his view that radical mastectomy should be performed for carcinoma of the breast on all patients who can stand the procedure. He finds a surprisingly large proportion of resectable neoplasms of the alimentary tract, lung and brain, certainly more than in the experience of some Australian practitioners. The oft-repeated phrase "full laboratory and X-ray work-ups" is not specified to suit the requirement of individual tumours.

Whilst this book contains a wealth of clinical and pathological fact concerning neoplasia, we do not think that it is quite suited to general practitioners and medical students in Australia.

Diagnostic Tests in Neurology: A Selection for Office Use. By Robert Wartenberg, M.D., with forewords by Sir Gordon Holmes, M.D., F.R.S., and Stanley Truman, M.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 8½" x 6", pp. 228, with 62 illustrations. Price: $4.50.

THIS small book presents and describes clinical methods of examination in neurology. The author stresses the undoubted fact that a correct diagnosis in neurological cases is usually possible without the need to refer the patient for special investigations, which are time-consuming and expensive for the patient, and which usually give far less information than thorough clinical examination.

The book is not a complete presentation of clinical methods of neurological examination, but describes methods eliciting certain signs, which the author finds useful. It is not, therefore, a book which presents a method for the thorough examination which is necessary in neurological diagnosis, but it presents signs which are new, useful or neglected, and it describes the physio-anatomical basis for the signs presented. It is a work which is purely supplementary to fuller works on neurological examination. The deficiency in completeness, for which the author makes no claim, is partially compensated for by the clear and full manner in which the various tests are described and by the inclusion of many excellent illustrations.

In a book which presents only a few of the clinical tests which are useful in neurology, there is bound to be difference of opinion as to the relative usefulness of tests described and tests omitted. For instance, it does not seem warranted to describe nystagmus but briefly, because the subject is complex, or to suggest that "when the physician encounters a case of intricate nystagmus, it is wise for him to consult an ophthalmologist".

The author states that this book was written primarily for general practitioners, but perusal of this work will not solve the general practitioner's problems in neurological diagnosis, because it is incomplete. However, neither general practitioner nor neurologist would regret reading the book, because the style of writing is clear and stimulating and it describes useful clinical signs in a most interesting manner.

The Anatomy of the Nervous System: Its Development and Function. By Stephen Walter Ransom, M.D., Ph.D., revised by Sam Lillard Clark, M.D., Ph.D.; Ninth Edition; 1953. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 10" x 7", pp. 594, with 434 illustrations, 18 in colour. Price: £4 0s. 9d.

IT is very difficult to preserve the character of an old-established scientific text-book in a world—especially the neurological world—which is subject to the rapid changes so apparent today. At the same time, nothing is gained from preserving archaic features purely for the sake of character. Dr. Clark's task of securing a reasonable balance between the past, the present and the possible future is not an easy one and he has, on the whole, done fairly well. As a relic of the past we note the survival of that quaint old term "metathalamus", while for the present and the future is the addition of references to some of the more recent literature. The qualification "some" is used advisedly. Analysis of the references given shows a peculiar narrowing of the field from which they are drawn. Under Dr. Ransom's regime, and up to the beginning of World War II, the references, while showing a strong American bias, did betray a reassuring international flavour. Since then, however, the bibliography is 90% or more American. This, of course, gives a totally false impression of the relative value of the work cited and shakes one's confidence in the basis upon which the book is now conceived. Despite this criticism, "Ransom" remains probably the best work available to students in the English-speaking world, and its most valuable part is still the series of sections at the back. This edition exceeds its predecessor by 49 pages and 17 illustrations.

The 1952 Year Book of Neurology, Psychiatry and Neurosurgery (November, 1951-October, 1952). Neurology, edited by Roland P. Mackay, M.D.; Psychiatry, edited by Nolan D. C. Lewis, M.D.; Neurosurgery, edited by Percival Bailey, M.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 8" x 5½", pp. 604, with 121 illustrations. Price: $6.00.

IN the previous issue of this Year Book the practice was discontinued of having a separate section on neurosurgery. This practice has now been resumed, with apparent satisfaction to everybody. The section on neurology has chapters on anatomy, physiology, pathology, trauma, infectious diseases, vascular disturbances, degenerative diseases, the epilepsies, the cranial and spinal nerves, and diagnostic and therapeutic methods. The chapter on infectious diseases deals with three diseases: meningitis, with particular reference to the still conflicting views on the treatment of tuberculous meningitis and reports of a number of unusual types of meningitic infection; encephalomyelitis, including Japanese B encephalitis and Murray Valley encephalitis; poliomyelitis. The degenerative diseases referred to are neurodegenerative diseases, including a number of the rarer conditions, multiple sclerosis, muscular dystrophies and *myasthenia gravis*. In the field of neurophysiology, the editor of the section draws attention to two major aspects: the study of encephalic localization and function, and the hormonal and chemical features of the effector mechanisms. It is interesting to note his reference to the virtual disappearance of articles on neurosyphilis from the literature.

In the section on psychiatry, chapters are devoted to general topics, child psychiatry, schizophrenia, affective disorders and miscellaneous reactions, organic disorders and toxic reactions, psychoneuroses and psychosomatic disorders, and therapy, including psychotherapy, electric shock therapy, psychosurgery and miscellaneous therapeutic procedures. In the introduction to the section, the editor provides brief information on a number of books of major importance published during the year on psychiatry, with particular reference to psychoanalysis. He points out the difficulty of presenting satisfactory abstracts of articles in the last-mentioned field.

The resumed section on neurosurgery, under its previous editorship, has chapters on intracranial tumours, intraspinal tumours, tumours of peripheral nerves, hæmorrhagic lesions, vascular lesions, anæsthesia, trauma, pain, infections, radiation, intervertebral disks, malformations, motor disturbances, psychosurgery, and miscellaneous subjects. The editor of the section contributes an illuminating comment on nationalism in neurosurgery with particular reference to the development of neurosurgery in Russia. Some of his remarks apply to a wider field than neurosurgery.

This Year Book does not pretend to include every significant article from the enormous field of literature that it is concerned with, but the critically treated selection will bring those interested up to date.

Notes on Books, Current Journals and New Appliances.

The National Health Service: A Guide for Practitioners. Edited by Max Sorsby, L.M.S.S.A., with a foreword by Allen Daley, M.D., F.R.C.P.; 1953. Edinburgh and London: E. and S. Livingstone, Limited. 8½" x 5½", pp. 280. Price: 12s. 6d.

THIS book has been planned by a general practitioner for general practitioners, and tells how the National Health Service in Great Britain is controlled, what are the functions and the composition of the various committees and boards which administer the service, and exactly how they do their work. It is in six sections. The first is an historical account of the evolution of the National Health Service in Great Britain. The second discusses, in two articles, the rights and status of the general practitioner and of the patient. The third, on statutory bodies, covers the Medical Practices Committee, the Executive Council, the Local Medical Committee, National Insurance and pensions, the Local Health Authority and hospital boards. The fourth gives an account of the non-statutory bodies, the General Medical Services Committee, and the British Medical Association and British Medical Guild. The fifth is concerned with the special services, and includes the dental services, eye service, maternity service, pharmaceutical service and the hospital welfare service, with a chapter on the coroner. The sixth and final section refers to the future in two articles entitled "Some Remedial Deficiencies" and "Looking Forward". This book is, of course, written for the practitioner in Great Britain. Its appeal in Australia will be mainly to those who are students of the evolution of medical practice.

Laboratory Technique in Biology and Medicine. By E. V. Cowdry; Third Edition; 1952. London: Baillière, Tindall and Cox. 9½" x 6¼", pp. 414. Price: 35s.

THIS book is a reference handbook prepared according to an alphabetical scheme in the manner of a dictionary. Separate treatment is given to particular laboratory procedures, material used in such procedures, materials examined and so on. Some descriptions of key techniques have been written or revised by the investigators who introduced them or by others who have had extensive experience in their use. The last edition of this book was published in 1948. It is pointed out in the preface to the present edition that the advances made or reported in the relevant fields during the four years from 1948 to 1951 are probably greater than those accomplished in any previous ten-year period, so that the new edition is more than justified from the reader's point of view. Since the publishers also, apparently, consider that the edition is justified, it may be presumed that previous editions were popular.

American Pocket Medical Dictionary. Nineteenth Edition; 1953. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 7" x 5", pp. 644. Price: £1 11s. plain, £1 15s. 9d. with thumb index.

THIS small medical dictionary is designed to meet the needs of students and practitioners in such fields as nursing, pharmacy, dentistry, medical technology, medical stenography, dental hygiene, veterinary science and other

related disciplines. It is not intended to supplant the larger type of medical dictionary designed primarily for the student and practitioner of medicine. The aim of the compilers has been to define technical terms in readily understandable language, and a key to pronunciation is included. Although the type used is, of necessity, small, the print is clear and the general make-up is good. The binding is particularly attractive. This book should very satisfactorily meet the requirements of those for whom it is designed, although it is doubtful whether they will find the price as attractive as the book.

X-Ray and Radium Therapy for Students. By Basil A. Stoll, F.F.R., D.M.R. (London), D.M.R.T. and D. (England), with a foreword by Frank Ellis, M.D., M.Sc., F.F.R.; 1952. London: H. K. Lewis and Company, Limited. 7¼" × 5¼", pp. 214. Price: 17s. 6d.

THIS book is written for the general medical reader, whether undergraduate or post-graduate, and is not intended for the specialist. It is described as a guide to the place of X rays and radium in medical and surgical practice. It deals in turn with general principles of radium therapy and then with its application in surgery, medicine, gynæcology, oto-rhino-laryngology and dermatology. Details of dosage and technique are omitted, and even the broad references to this aspect of the subject are added in small print. Little reference is made to theoretical physics. The subjects considered are only those in which radium therapy has come to be an established method of treatment, and the author has made it his aim to describe only those principles of technique that have been generally accepted in the United Kingdom and abroad and whose value has been generally agreed upon. In order to make the work as widely acceptable as possible he has deliberately refrained from quoting particular authorities or from quoting his own views. Medical students and practitioners will derive benefit from reading this book provided that they do not imagine that they thereby become authorities on the subject.

Psychiatric Treatment. Proceedings of the Association for Research in Nervous and Mental Disease, December 14 and 15, 1951, New York. Edited by S. Bernard Wortis, M.D., Morris Herman, M.D., and Clarence C. Hare, M.D.; Volume XXXI; 1953. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6¼", pp. 466, with 49 illustrations. Price: £4 16s. 9d.

APPRECIATING the importance of critical evaluation of the effectiveness of psychiatric treatment, the Association for Research in Nervous and Mental Disease arranged a symposium on the subject. This book is the result. It contains the individual papers presented in the symposium, a summary of the papers in each section presented by someone other than those who read them, and discussion that followed the reading of the papers. The symposium deals with three broad groups of subject matter: individual and group psychotherapy; biological, electrical and pharmacological treatments; neurosurgical treatments. The stated aim of the symposium was to survey the different forms of psychiatric therapy in relation to their basic factors, methods and utility. In view of the considerable developments that have taken place in psychiatric therapy in recent years, and their great diversity, this attempt to bring the subject of psychiatric treatment into perspective will be welcomed.

The Proceedings of St. Vincent's Hospital.

THE first issue of *The Proceedings of St. Vincent's Hospital, Sydney*, has been published. The members of the honorary medical staff have for some considerable time wished to have under one cover some record of the work done at the institution. They have made a satisfactory start and are to be congratulated. Dr. R. D. Condon is the editor and the editorial committee has as its members Dr. P. J. Markell, Dr. N. C. Newton and Dr. A. F. Dwyer. After an editorial in which reference is made to the foundation and growth of Saint Vincent's Hospital, then contributions from the staff have been included; one or two of them have previously been published in THE MEDICAL JOURNAL OF AUSTRALIA. The contributions are by Douglas Miller, L. T. Shea, A. G. McManis, J. T. Holland, J. L. Dowling, H. M. Windsor, S. J. Minogue, K. A. McGarrity, H. C. Beckett and R. J. B. McEwen. The journal is a crown quarto production and will appear twice a year.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Handbook of Sterilization Procedures: Recommended Techniques for Use in Queensland Public Hospitals", by members of the Advisory Committee on Sterilization Procedures; 1953. Brisbane: Issued by direction of The Honourable the Minister for Health and Home Affairs. 8¼" × 5¼", pp. 116, with 30 illustrations. Price: 7s. 6d.

This book is being issued officially to public hospitals in Queensland.

"Rorschach's Test: I: Basic Processes", by Samuel J. Beck, Ph.D., with a foreword by James G. Miller; Second Edition; 1950. New York: Grune and Stratton. London: George Allen and Unwin, Limited. 9" × 6", pp. 240, with 10 text figures. Price: 30s.

The book is intended "to demonstrate the processes in scoring Rorschach test responses".

"Clinical Tropical Diseases", by A. R. D. Adams and B. G. Maegraith; 1953. Oxford: Blackwell Scientific Publications. 9" × 6", pp. 518, with 65 illustrations. Price: 40s.

The authors' aim has been to supply essential facts as dogmatically and concisely as they could, and at the same time to avoid speculations.

"The 1952 Year Book of Endocrinology (January, 1952-January, 1953)", edited by Gilbert S. Gordan, M.D., Ph.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 8" × 5¼", pp. 400, with 107 illustrations. Price: $5.50.

One of the Practical Medicine Series of Year Books.

"Pathology in Surgery", by Edwin F. Hirsch, Ph.D., M.D.; 1953. London: Baillière, Tindall and Cox. 9" × 6¼", pp. 492, with 388 illustrations. Price: 76s. 6d.

The authors deals with every system in turn and describes specimens in each. The illustrations are good.

"Diuretic Therapy: The Pharmacology of Diuretic Agents and the Clinical Management of the Edematous Patient", by Alfred Vogl, M.D.; 1953. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6¼", pp. 262, with five text figures. Price: 53s. 9d.

The author discusses the pathogenesis of the different types of œdema and the action of the various drugs and therapeutic procedures which can be employed.

"Basic Bacteriology: Its Biological and Chemical Background", by Carl Lamanna, Ph.D., and M. Frank Mallette, Ph.D.; 1953. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6¼", pp. 692, with 100 text figures. Price: £5 7s. 6d.

The book is intended to present the nature of the cytological, morphological, taxonomic, physiological and biochemical problems which confront the bacteriologist.

"World Medical Periodicals", prepared under the auspices of a committee jointly sponsored by the United Nations Educational, Scientific and Cultural Organization, and the World Health Organization; 1953. Paris: United Nations Educational, Scientific and Cultural Organization. Geneva: World Health Organization. 9¼" × 6¼", pp. 254. Price: 12s. 6d.

The list includes titles of all current medical periodicals which have been traced, all medico-biological periodicals regularly surveyed by certain abstracting agencies, and well-known medical journals which ceased publication during the period 1900-1950.

"Cortisone and ACTH: In Clinical Practice", edited by W. S. C. Copeman, O.B.E., M.D., F.R.C.P., with a foreword by The Lord Horder, G.C.V.O., M.D., F.R.C.P.; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 9" × 6", pp. 266, with 29 illustrations. Price: £1 15s. 6d.

An attempt to take stock of current opinion on the subject.

"Pathology of Tumours", by R. A. Willis, D.Sc., M.D., F.R.C.P.; Second Edition; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" × 7", pp. 1066, with 500 illustrations. Price: £5 14s.

The first edition was published in 1947.

The Medical Journal of Australia

SATURDAY, OCTOBER 3, 1953.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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THE AUSTRALIAN CENSUS.

SINCE the census of June 30, 1947, the Bureau of Census and Statistics, Canberra, has published twenty-five *Bulletins* or reports on special topics and detailed tabulations in twenty-eight parts. Following previous custom, a commentary or "Statistician's Report" is now issued. The Bureau, after taking over control of the census from the States, continued the policy of holding regular ten-yearly censuses in accordance with an agreement with other parts of the Empire. Censuses were therefore carried out in 1911 and in 1921, but it was decided that financial conditions made necessary a postponement of the projected 1931 census until 1933. As a result, no arrangements had been made to hold a census in 1941. A lapse of some fourteen years between the censuses of 1933 and 1947 occurred. Further censuses will be held in 1954 and 1961. It seems very likely that for some census inquiries, a sampling type of inquiry will be used. Sampling methods are particularly useful when more than a very simple answer is required for any question.

The early chapters of the report deal with the administrative detail, such as the *Census Act* and regulations dealing with the census, the schedule of questions, preliminary arrangements, maps, machine tabulation and a bibliography of the published *Bulletins* and parts. The schedule of questions of 1947 contained no question on infirmities, although the schedules of 1911, 1921 and 1933 contained a question on blindness and deaf-mutism. The emphasis was on housing, which was regarded in 1946 as of extreme economic importance. But it may well be argued that this topic could be more expeditiously and efficiently dealt with by some form of sampling inquiry. Furthermore, the extension of social services has rendered some inquiry on chronic disease desirable. We have no survey comparable to that carried out in the United States of America in 1936. Diabetes, the group of rheumatic diseases, crippling, blindness and deafness would all be appropriate diseases for such a study. In fact, although it is surmised that the chronic rheumatic diseases cause a great deal of invalidity and loss of working time, there is no precise information available in Australia. Since rheumatic diseases are so common, they lend themselves to study by sampling techniques.

Intercensal estimates are dealt with in a separate chapter (Chapter VIII). It is necessary to make estimates of the population by age and sex and by State in the years between the censuses. For this, the results of the last census together with records of births, deaths and migration are used. It is very gratifying to note that after a stretch of fourteen years the estimate for the total population in 1947 was in error by only 0·25%.

The chief medical interest of the report will lie in the demographic discussions of Chapters IX to XIV and XXII and XXIII. The topics of the other chapters, such as race, nationality, religious creeds, industry, occupational status and dwellings are of less medical interest. Two important demographic changes have occurred in the Australian population, chiefly in the years since Federation. First there has been a notable change in the proportions of the sexes at the higher ages, there now being many more females at the higher ages than males. This has occurred even though these groups contain the survivors of the migrants in the latter part of the nineteenth century and about twenty-one boys are born to every twenty girls. The female preponderance at the higher ages is due partly to losses in war and partly to the more favourable mortality experience of the females at all ages. A more important finding is the aging of the population, whereby the elderly are much more heavily represented in the 1947 census than in the 1911 census, for example. This problem is somewhat more urgent in Western Europe and in England, where it has been extensively investigated under the terms of a Royal Commission. Aging in Australia has been due in only a small degree to changes in mortality; the important causes have been the decline of the birth rate and the lowered immigration rates between 1930 and the time of the 1947 census. The report, therefore, has devoted much space to data which will give a better idea of the fertility than the net reproduction rate, and this has been found to give misleading ideas on the fertility rate in times of special disturbances such as war or depression. In other words, the fertility of women passing through their reproductive life is measured directly by finding how many children women born, say, in 1900 have had. The net reproductive rate gives a measure by assuming that the fertility rates at a point of time would continue indefinitely.

A notable omission from the report is any special mention of the life tables prepared by the Bureau in cooperation with the Government Actuary. The report will repay study by anyone interested in the demography of Australia.

READJUSTMENT AND SPEECH.

ONE of the curious features of a world whose inhabitants are largely dependent on words for ideas is the emergence of groups of words which recur in conversation, in writing and therefore in the labyrinths of our minds. These are the stop-gaps of dull speech, the worn but flashy *clichés*, the substitutes for honest opinion. We are apt to be

scornful of those who are happily unconscious of any gaps in their verbal or semantic equipment, but indeed it is likely that many of our own conversational coins are counterfeit and do not "offer the stamp of the very Guelph". It is hardly fair to laugh at the fond mother whose cramped vocabulary retired into endearing diminutives, and who explained how carefully the doctor examined her very young son, saying that "he even tested his little water". Now and then a medical purist tells us how the neologisms of medicine offend his acute classic sense or protests against the current slang of doctors. Temporarily these mild rebukes remind us that at least in the eyes of some of our fellows we are not as other men, but we find it difficult to learn better habits, perhaps taking comfort in Sherrington's dictum that we cannot learn to skate by cogitation. Now Sherrington, in his outstanding "Integrative Action of the Nervous System", made it clear that what he called "sensori-motor experience is of itself more valuable than any course of reasoning can be". He would no doubt have been interested in the feat by a musician who memorized a new piano concerto while in bed and unable to use her hands in playing. Of course it must be remembered that in this instance the joint forces of two processes were allied, for reason in its direction of effort helps us in the selection of the scope of motor experience. Before leaving the philosophy of the great neurologist, we might recall that the cerebrum and especially its cortex form "a nervous mechanism which may be described as the organ of, and for, the adaptation of nervous reactions". It is therefore the organ for readjustment of nervous reactions, and Sherrington ends his famous lectures by saying that for the extension of the creature's dominance over its environment "its cerebrum is its best weapon". "The creature", he adds, "has to be partially readjusted if it is to hold its own in the struggle."

Speech is perhaps our greatest inheritance. How man has ennobled it, but how he has debased it! We know that love of fellow men is more necessary to us than human and celestial eloquence, but we cannot communicate spirit to spirit as befits our high-grade brain unless we consider what we mean when we speak, as we do only too often carelessly and ill-advisedly. The accusation "Thy speech bewrayeth thee" did not only fit Peter. When we reflect that, as Bertrand Russell points out, words are of four kinds—spoken, heard, written and read—we realize the importance of speech in the brain and on the lips of an educated man. And when we reflect that the doctor has not only a general but a specialized education, that he commonly meets his fellow man in circumstances of strain, under the threat of discomfort, or pain, or fear, or danger, we should try to adjust our speech to convey the wanted message to the one in trouble. Even in his last hour of life Socrates remembered that he owed a cock to sacrifice to Æsculapius.

What has all this to do with readjustment? Is not the modern world one of dangerous problems, of political and racial *clichés*, and of talk, seemingly endless talk? Let us hope this is evolutionary, and that man, with a more refined and honest use of this great function, will apply more persistently whatever fraction of his cerebral power Nature permits him. In our daily speech, in our constant professional discussions, in our evaluation of the floods of puerile and time-wasting concatenations of words heedlessly linked together, we can attempt to say what we mean, even though as fallible men and women we do not always mean what we say. Might it not be possible that a saner and clearer use of words would help the readjustment of values, social, commercial, political, professional and moral?

Current Comment.

BEHAVIOUR OF THE CHILD IN THE FIRST YEAR OF LIFE.

The Josiah Macy Junior Foundation has published the transactions of the sixth Conference on Problems of Infancy and Childhood held in New York in March, 1952.[1] Conferences sponsored by the Foundation embrace many aspects of medicine, but have one main aim—that is, to make a multiprofessional approach to the problems under consideration. Dr. Frank Fremont Smith, the director of this conference, states that the isolation of knowledge in several branches of science is a serious obstacle to scientific progress and there are occasions when progress in medicine demands a knowledge of such widely differing subjects as nuclear physics, mental hygiene and sociology. On such occasions key investigators in these fields should meet and discuss a specific problem. At the present conference, according to the usual plan, psychiatrists, pædiatricians, psychologists and medical people interested in public health and obstetrics met to hear and discuss papers dealing with the first year of life. Each paper was followed by free and informal discussion; this greatly enhances the value of the papers, as one sees more of the creative and intuitive aspects of research. All three papers were prepared from child study centres of American universities by women to whom this type of research seems particularly suited, requiring as it does an almost intuitive awareness of the feelings of both mother and child. A paper dealing with emotional development in the first year of life was presented by Dr. Sibille Escalona, of Yale University, who gave her impressions of what it is like to be a baby in the pre-verbal phase; she modestly asserts that this is mainly impression and fantasy, but one cannot fail to be impressed by the wealth of accurate and sympathetic observation that lies behind her statements. This very significant contribution emphasizes the individuality of every child and makes us think more intelligently not only of personality development, but of individual variations in reaction to disease. Though the newborn baby is usually regarded as having two main types of experience—namely, eating and sleeping (and extraordinary variations in these can occur)—Dr. Escalona points out that its daily life is actually full of other experiences not vital to life: skin sensation is acute for touch, temperature and pain and is being constantly stimulated; kinæsthetic sensation is perceived with some accuracy; sight and hearing, though not physiologically dominant at birth, gradually become more important as the predominant modes of sensory perception change and develop during the first year. Babies show a wide variation in sensitivity to sensation; and when the child's interaction with its environment is being studied, it is essential to observe the nature and sensitivity of the child as well as the environmental variations. The same emotional end-result may be achieved by sensitive baby *plus* normal strain and by normal baby *plus* excessive strain. Dr. Escalona states that she considers behaviour and development in terms of interaction between organism and environment. The other main maturational developmental change is increasing motor coordination. The early observed changes

[1] "Problems of Infancy and Childhood: Transactions of the Sixth Conference, March 17 and 18, 1952, New York", edited by Milton J. E. Senn, M.D.; 1953. New York: Josiah Macy Junior Foundation. 9″ × 6½″, pp. 160, with one text figure. Price: $2.50.

in the child may be regarded as mainly reactive; then during the first six months one sees the gradual appearance of purposive movements. The child appears to be in a state of varying awareness of himself, gradually he distinguishes between parts of his body and the outside world, and a sense of space and time develops. Two situations less optimal for development in the early stages are mentioned. The first is when the mother reduces physical contact with her baby to a minimum; whatever her reason may be (for example, observance of a particular method of child upbringing or rejection of her child), the effect on the child is much the same. The second is when the mother cannot leave her child alone; this may be a manifestation of anxiety, a sense of insufficiency or overprotectiveness, and from Dr. Escalona's observations, this type of mother is commoner in America. In the consideration of the baby's social interaction, its relationship with the mother and their methods of intercommunication are vital; it also appears to be significant whether interactions between mother and child are primarily initiated by the mother or by the indicated needs of the child. For the currents of feeling that appear to pass between mother and child Dr. Escalona uses the term "contagion"; as she puts it, "mothers and all other sensible people know that feelings, purposes and intentions are communicated to and by babies long before speech and specific gesture play a role". Studies of mother-baby couples often manifest a harmony in which the mother is acutely conscious of the child's needs as they arise and the child appears to react to the mother's sensitivity. The "intellectualizing" mother often appears to increase her anxiety with her knowledge and by contagion disturb her baby; hence the importance of practical rather than theoretical instruction in baby care for these mothers. Women with experience in handling babies seem to impart to them a degree of confidence not seen in the first baby of an inexperienced mother. Dr. Escalona's paper with its clinical examples is delightfully clear, which is more than can be said for some of the discussion that ensued between psychologists and psychiatrists.

A paper on the subject of individual tendencies in the first year by Dr. Katherine Wolf, of Yale Child Study Centre, also demonstrated very clearly what great variations within limits occur and how seriously astray much of our teaching on child management has been. A study being carried out at New Haven is discussed. This study is a longitudinal one in which the children are studied from the pre-natal stage through childhood. This is done by providing pre-natal clinics, maternity care, supervision of sick and well babies and a nursery school, so that every baby is seen ten to thirty times a year and studied in close relationship with its mother and, if possible, its father. Personality development is being intensively studied, and attempts are being made to predict behaviour. The prime objective is to accumulate accurate observations of development of personality. Two clinical cases are discussed in some detail in the paper.

Ann Stewart, of the Child Study Centre, University of Washington, reports a very interesting study of excessive crying in infants. The term excessive crying is not exactly defined, but certainly covers the effect of colic and periodic crying of the type that lasts for hours, as well as the behaviour of the generally unhappy baby. The study was carried out by a multiprofessional team of pædiatrician, psychologist and psychiatrist; so physical and psychological development was studied, and pulse rate, respiration rate and general body growth were correlated with psychological observations. The nasal mucosa was studied in detail for swelling, colour, discharge *et cetera*, nasal smears were examined, and blood eosinophile cell counts were carried out. This astonishingly detailed study even included a barium meal examination for each baby. The study covered 21 babies, of whom 12 cried. It is clear that the earliest neonatal mother-child relationships revolve predominantly around eating and holding; and in both relationships in this study the mothers of the crying babies were insecure, anxious and tense and were unable to achieve personal satisfaction in carrying out these functions for the child. The babies showed stress by reverting to behaviour patterns of an earlier age, considerable physiological instability and a raised eosinophile cell count. One child in the non-crying group became a crying baby with physiological instability when her mother returned to her job. This study also demonstrated the importance of a supportive father in the prevention of crying.

It is of interest to note that at the conference Dr. Knut Kjelberg gave a brief review of World Health Organization activities, in which he mentioned the plans for holding seminars on mental health in childhood to be attended by multiprofessional groups in various parts of the world; the third of these has just been successfully concluded in Sydney.

THE EFFECT OF THE INTRODUCTION OF METAL INTO BONE.

"THE crying evil of our art is that much of our surgery is too mechanical. There is a hankering to interfere which thwarts the inherent tendency to recover. We want knowledge that will aid repair, not better mechanics." So wrote Hugh Owen Thomas over sixty years ago, and in quoting his words Sir Reginald Watson-Jones[1] points out that they apply no less forcibly today when there is again a tendency to base the technique of bone surgery on mechanical considerations rather than on physiological principles. Methods of controlling or partly controlling bone infection ranging from Listerian antisepsis to antibiotics have greatly encouraged the modern tendency to use plates, screws, pins and nails in the treatment of fractures. In the light of this, Watson-Jones, in an illuminating chapter on the reactions of bone to metal, considers in order thermal, electrochemical, bacteriological and physical destruction of bone as it is brought about when bone and metal are brought into contact. This chapter should be read by every surgeon who uses metallic devices in bone surgery, whether in the form of motor-driven saws and high-speed drills, or as pins, plates and the like left in contact with the bone. Watson-Jones is far from seeking to outlaw the use of metal in bone surgery, but his facts support a conservative approach and show how disastrous this type of surgery can be if the surgeon (or technician, as Watson-Jones would appropriately prefer to call him in this context) forgets that he is dealing with living bone. The chapter would certainly have been approved by Hugh Owen Thomas, another quotation from whom closes the chapter: "If it should be discovered that I have added one atom to the principle, it will give me much more satisfaction than if I should succeed in burdening practice by ingenious means."

Another atom, and more, is added to the principle by Douglas H. Collins, of the Department of Pathology in the University of Leeds, in a pathological study of the structural changes occurring around nails and screws in human bones.[2] Collins points out that isolated observations on these changes have been recorded, but the matter has not hitherto been studied systematically. As evidence that misapprehension exists, he quotes a statement made by Böhler about the use of Küntscher's medullary nails in the treatment of fracture: "As X-ray pictures show, no pathologic changes take place in the bone if truly rust-proof material is used." Collins's comment is that it is not possible for a living bone to retain a foreign body of any sort, even of so bland a material as modern non-corrosive metals and plastics, without some vital reaction and some modification of the architecture of the surrounding tissues. In this connexion, he defines a bland material as one which does not destroy the vitality of the adjoining tissues, does not induce resorption of bone, provokes no inflammatory responses beyond that occasioned by the trauma accompanying its insertion and by its mere presence as a physical and non-vital structure, and does not impede the processes of repair. The bland material

[1] "Fractures and Joint Injuries", Fourth Edition, 1952.
[2] *J. Path. & Bact.*, January, 1953.

itself must be able to resist corrosion by the tissues and tissue fluids in which it lies. There have recently become available biologically inert metals and plastics with mechanical properties appropriate to the many purposes for which surgeons require them, and Collins emphasizes the need for a clear understanding of the pathological consequences of inserting such appliances into bone. To demonstrate this, he has studied the changes taking place around intraosseous stainless steel nails at times ranging from six days to five years after their operative insertion in 12 instances of fractured neck of the femur. The use of the Smith-Petersen nail in the treatment of fractured neck of the femur is one of the most successful and most widely approved of the procedures in which metallic supports are inserted into bones, and so is particularly appropriate for the investigation. The material in the twelve cases studied forms, as Collins states, a sufficiently complete series to show the progress of events following the insertion of the nail. Those interested in the details of Collins's findings in the individual cases may study them for themselves in his full descriptions and excellent illustrations. The following overall picture is drawn. The entry of the nail shatters a few trabeculæ and causes a small amount of hæmorrhage within the bone. The repair of this damage leads to the encapsulation of the nail by fibrous tissue which forms a smooth membranous lining to the nail track. This is well developed in five or six weeks and new bone appears in the fibrous wall about the same time. Further bone deposition in the fibrous tissue and preexisting trabeculæ forms, in twenty weeks or over, a more or less continuous bony shell around the nail track. This new bone gradually becomes consolidated, and at the end of two and a half years plates of lamellated bone are seen, which at the end of five years are endowed with Haversian systems and then resemble true bone cortex, continuous around the lip of the track and with the external cortex of the femur and covered by a layer of fibrous tissue continuous with the periosteum. The nail is thus completely sequestrated. Unable to extrude the foreign body, the bone excludes it from its inner structure by forming round it a wall, first fibrous, and later both fibrous and bony.

Collins goes on to say that it is reasonable to suppose that the same sequence of events occurs when any other appliance is buried in bone, provided that it is made of non-corrodable and otherwise inert material. The early reactions of the medullary connective tissues around stainless steel screws have been described, and are similar to those seen in cancellous bone around the nails. Collins has studied three bones which have borne acrylic resin appliances for periods up to three months and has noted comparable changes in the tissues around the implanted plastic. He considers it almost certain that intramedullary nails of Küntscher are sequestrated in the same way, but no investigations have been recorded.

Another aspect of the matter arose in seven cases of the series in which a stainless steel plate had been bolted to the head of the nail and screwed to the outside of the femoral shaft. Collins states that surgical considerations dominate the discussions whether the use of such a plate is desirable, but his present pathological study suggests some arguments against its use. These structural changes taking place in the bone around the nail were the same whether or not an external plate was used. In all cases except one, the nail, whether anchored to a plate or not, was so tightly lodged in its tunnel that a hammer tap was required to release it. Finally, the results showed that the drilling of screw holes devitalizes cortical bone, and the presence of defects of the cortex must constitute a serious and probably permanent flaw in the strength and structure of the bone.

Collins also gives the details of a case of electrolytic bone destruction from a corroded nail of the old type, but his study is mostly concerned with material described as biologically inert. His demonstration of just how considerable is the reaction of bone to such material will be a revelation to many who have used it with little thought about what happened after it was inserted. In particular, the findings in relation to the use of screws serve to emphasize the warnings of Watson-Jones, who states that the injury caused by a high-speed drill in preparing the track for a screw is not recognized sufficiently. Every hole so driven and every screw introduced is a source of weakness. The use of screws may be difficult to avoid, but "the occasional necessity for screws is an evil necessity". "The joys of operative craftmanship must not be indulged: the driving of screws with power-driven tools is great fun, but it is a pleasure that must be denied." The judgement of the surgeon is, as always, to be preferred to the enthusiasm of the technician.

ANÆMIA AND THE HEART.

REDUCTION of the capacity of the blood to carry oxygen such as occurs in anæmia must have some effect on the heart already affected by disease, but an editorial article in a recent journal points out that even the otherwise normal heart may also be affected. The authors, William B. Porter and G. Watson James, state that this is not generally appreciated, and in their article they give a good summary of the present position with regard to the affection of the heart whether previously healthy or not in conditions of anæmia, and also discuss the effects upon respiration and tissue metabolism.[1] They regard four chief physiological mechanisms as important in discussions on the subject: these are the cardiac minute volume output, the velocity of the blood flow, increased oxygen delivery to the tissues by the removal of a greater percentage of oxygen from the unit quantity of hæmoglobin, and the selective shunting of blood to vital organs. Though an increase in cardiac output of anæmic patients has been consistently found, this is not closely related to the degree and duration of the anæmia. Porter and James point out that such increase is not found in patients with parasitic anæmia whose hæmoglobin levels are constant over a period of years. This they illustrate with figures derived from patients with hookworm anæmia who were able to work as labourers without distress. Compensation seems to have been established for basal conditions, but under stress the cardiac output increased as well as other mechanisms. Tachycardia and increased velocity flow are, then, adaptations for acute stress rather than for prolonged strain. The authors conclude from clinical studies that there is a significant difference in the heart of an active anæmic person and that of one inactive in bed, even though the degrees of anæmia be the same. They further have not met with proven enlargement of the heart in anæmia unless some other circulatory condition existed or unless the subject had been active during his state of anæmia. Pulmonary ventilation they have found to be consistently increased on exercise in anæmic patients with a hæmoglobin value of 7·0 grammes per 100 mils or less, such a degree of anæmia predisposing to dyspnœa owing to encroachment on the respiratory reserve. However, in time adaptation may occur, and the ventilating capacity of the lungs may increase until the patient is able even to work in a tropical climate in spite of anæmia. The authors suggest that more work on the subject could be done with advantage. Other interesting points observed are the pallor of high grade seen in persons with parasitic and other forms of chronic anæmia, and evidence of lessened blood flow in the outlying vascular fields. An important result of chronic anæmia is the necessity for a great increase in the coronary blood flow by a shunt of blood to this vital area, for as the myocardium exacts 90% or more of the oxygen in the cardiac circulation, more blood is needed to prevent myocardial anoxia. Here again more exact information would be helpful. Electrocardiographic changes occur in some 20% of anæmic persons, according to the authors, but these are usually minor.

Porter and James have noted that in chronic parasitic anæmia 86% of those patients who had irreducible cardiac enlargement showed changes characteristic of left ventricular preponderance. They quote a number of relevant

[1] *Circulation*, July, 1953.

reports from the literature supporting the statement that the heart is the one organ which shows physical change in chronic anæmia. In a series of patients with chronic parasitic anæmia they found that all were ambulatory and all had signs of increase in the size of the heart. Effort angina they have found uncommon in the subjects of anæmia; when present it is usually associated with coronary disease.

In the authors' summary of their review they refer again to the possible compensations which may be established, though these are, of course, never complete. They conclude by pointing out that cardiac hypertrophy is an organic condition due to disease; therefore chronic anæmia is one of the causes of heart disease. It will certainly be agreed that anæmia is a condition which is important in its intimate relation to the vascular physiology, and an indication for investigation of its cause and for efficient treatment.

THE TREATMENT OF PLANTAR WARTS WITH "NOVOCAIN" INJECTIONS.

PLANTAR WARTS can be very troublesome to both doctor and patient. A number of accepted methods of treatment produce a substantial proportion of satisfactory results, but as E. C. Branson and R. L. Rhea[1] have pointed out, these methods are attended with discomfort, loss of working time and disability, they usually require admission to hospital, and the degrees of success vary. By a fortunate accident, Branson and Rhea, who are medical officers in the United States Army, have come upon a simple method of treatment which has given most encouraging results. The treatment is injection with 1% "Novocain" solution. The idea arose from the experience of a surgical technician, a Medical Corps sergeant, who was approached by a soldier with a plantar wart and a desire to march in a special parade. The sergeant injected the wart with "Novocain" as a temporary expedient. The soldier marched successfully in the parade, and in a few days the plantar wart disappeared. As a result of this observation, the method was successfully applied in a series of 48 patients. In almost every case symptoms were relieved, and in about three-quarters of the cases the warts were cured. As these are the findings after a six-month follow-up period, they may be regarded as significant. In only one case was there no improvement after three injections, and in this case the wart was successfully excised. Three patients in the series had extensive plantar warts of the mosaic type and were cured; one had approximately 30 warts involving the entire plantar surface of the left foot, and treatment by any of the accepted methods would have been extremely difficult.

The treatment consists of the injection of two or three mils of 1% "Novocain" solution under pressure into the base of the wart in the *stratum germinativum* layer of the epidermis. Best results are obtained with the use of a 26 gauge needle and a Luer-Lok dental syringe for injection under pressure. Branson and Rhea stress two important points: the needle should penetrate to the *stratum germinativum* through normal skin at the side of the wart; and only one needle puncture should be made because the injected fluid escapes through multiple holes and sufficient pressure cannot be obtained. If the needle is properly placed, there is stated to be considerable resistance to injection and the desired blanching of the skin and elevation of the wart will result. If the needle is too deep, there is little resistance to injection with no blanching and elevation of the skin, and no cure will result. Branson and Rhea state that patients usually become symptom-free within twenty-four hours. In five to seven days the wart becomes soft and darkens. Usually it can be lifted out with a thumb forceps after a week, provided that the injection has been properly made. In a few cases, one or two subsequent injections may be necessary, but in the meantime the patient is generally free from pain. In addition, of course, normal steps should be taken to deal with other aspects of the condition—for example, correction of chronic foot infections, cleanliness for patients with hyperhidrosis, and use of a well-fitted plantar arch support for patients with the wart under the metatarsal heads. Just why the treatment is effective is not clear, but it seems to work in most cases and no ill effects were experienced in the series. It is painless, simple and convenient and warrants further investigation.

[1] *New England J. Med.*, April 9, 1953.

A MORPHINE SUBSTITUTE FOR USE IN POST-OPERATIVE PAIN.

IN spite of their known drawbacks, salts of morphine still hold a high place in the treatment of pain as a symptom. Post-operative pain in particular calls for an efficient drug which has a minimum of uncomfortable side-effects. Robert D. Hunt and Francis F. Foldes have made some observations on the lævorotatory form of a previously tried drug to find if it was as effective as in the original form.[1] The drug in question is a new synthetic morphine-like substance, known as "Dromoran" hydrobromide, which has been used for pre-operative preparation, post-operative pain and intractable pain. The racemic form has been found to owe its analgesic properties to the lævorotatory isomer, and it was therefore of interest to determine if lævo-"Dromoran" could be safely and effectively substituted for the racemic drug. The authors carried out investigations in the anæsthetic department of the University of Pittsburgh School of Medicine, and tested the preparation "Lævorphan Tartrate" in the relief of post-operative pain. The selection of patients for trial was made on principles previously applied in this department for other analgesics. The dosage used was the theoretical equivalent of the lævoisomer, a dose of three milligrammes replacing one of five milligrammes of the dextroisomer. Comparisons were made with controls who received morphine sulphate. The standard employed was based on the period during which the patient had complete relief from pain. If no pain was experienced for three hours or more, the relief was classed as complete; moderate relief was recorded if complete or almost complete freedom from pain was obtained for less than three hours, and slight relief was taken to mean that the patient was relieved only partially for less than three hours. Any lesser degree was classed as none. Side-effects were looked for—in particular, dizziness, nausea or vomiting, sweating, dryness of the mouth, anorexia, pruritus, weakness, headache, drowsiness, confusion, visual disturbances, shivering or tachycardia. It will be seen that a certain degree of judgement was needed for the evaluation of these effects, for the patient's proneness or otherwise to suffer from any of these might be affected by the operative procedure itself to greater or less degree. The authors' findings are presented in tabular form, so as to compare the effectiveness of the lævoisomer with that of the "Dromoran" hydrobromide and with that of morphine sulphate. These results show that the first post-operative dose gave complete relief in 77% of cases, compared with a figure of 66% for the combined isomers and 46% for morphine. The percentages of patients who were completely unrelieved were 1, 2·6 and 5·8 respectively. Side effects were much the same with both forms of "Dromoran", and the "Lævorphan Tartrate" caused less sweating than morphine. These results show that *d,l*-"Dromoran" can be resolved into its optically active components, and that this procedure provides a compound which is twice as active in the relief of pain as the racemic preparation. The authors think that the drug is of promise, and represents a distinct advance.

[1] *New England J. Med.*, May 7, 1953.

Abstracts from Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Surgical Induction of Labour.

G. B. GIBSON (*J. Obst. & Gynæc. Brit. Emp.*, December, 1952) reviews 843 cases of surgical induction of labour, an incidence of 9·9% of all deliveries in the Royal Maternity Hospital, Belfast. The main indications were preeclamptic toxæmia (635 cases) and accidental hæmorrhage (61 cases). Labour was induced in 731 cases by rupture of the membranes—either the forewaters (529 cases) or the hindwaters (202 cases). The author stresses the point that the condition of the cervix determines whether rupture of the membranes should be performed. A "ripe" cervix (that is, one that is soft and two fingers dilated or entirely effaced) means that the uterus is primed for labour, and successful initiation of labour can be anticipated. As, for various reasons, 31 patients in the series had Cæsarean sections following induction by rupture of the membranes, and as there were no untoward complications, the author suggests that in doubtful cases in which the cervix is "unripe", instead of elective Cæsarean section, rupture of the membranes should be carried out. In some cases the patients will come into labour, but in the others the position should be reviewed after seventy-two hours. In two groups of cases Cæsarean section should be performed: when a serious increase occurs in the severity of preeclamptic toxæmia, and when further prolongation of the latent period may add to the fœtal risk.

Removable Foam-Rubber Obstetrics Forceps Covers.

EMANUEL M. GREENBERG (*Surg., Gynec. & Obst.*, June, 1953) states that the application of bare steel to the head of a newborn baby has produced a high traumatic toll ever since the introduction of obstetric forceps. He suggests the use of removable foam-rubber protectors for obstetrics forceps in the belief that any suggestion is indicated which is calculated to increase the safety factor of instruments used. He expresses the hope that this new device will relegate obstetrics forceps to the role of the "iron hands beneath the velvet gloves" and render them less traumatic to both mother and baby.

Uterine Inertia.

L. CLARK HEPP (*J.A.M.A.*, July 4, 1953) states that clinically, the condition of uterine inertia should be recognized, as early diagnosis is essential to successful treatment. It is a complication in about 3·5% of deliveries. The author describes the two types of inertia, primary and secondary, and points out that true and false labour must be differentiated; the cause and type of inertia can then be determined. Disproportion and mid-pelvic contractions should be ruled out by means of X-ray measurements before the patient goes into labour. Abnormal fœtal positions should also be recognized; occipito-posterior and breech presentations are the commonest ones. Inertia with breech presentations in primiparous patients, particularly those over thirty-five years old, is a special problem and must always be given careful consideration before any treatment is instituted. The high fœtal loss has been shown to be due to asphyxia and intrauterine infection. Rest, sedation and fluids are of value for the exhausted patient, but most errors result from failure to recognize the spastic lower uterine segment type of inertia early in its appearance. Failure after adequate trial by the non-surgical methods of stimulation should be an indication for Cæsarean section, which is the surgical procedure of choice if performed early.

Deformities of the Urinary Tract with Congenital Absence of the Vagina.

JOHN T. PHELAN, VIRGIL S. COUNSELLER AND LAURENCE F. GREENE (*Surg., Gynec. & Obst.*, July, 1953) state that one of the authors (Counseller) has recorded an increased occurrence or an increased incidence of diagnosis of pelvic abnormalities, such as endometriosis, hydrocolpos, ovarian cyst and the like and has commented on the fact that a hydronephrotic kidney in the pelvis may be indistinguishable on physical examination from such a condition. Removal of such a kidney may be difficult because of its fixed position and abnormal blood supply. From the patient's point of view it is important that she be made acquainted with the fact if she has a solitary, ectopic, fused or hydronephrotic kidney. The importance of these anomalies, as well as of others of the urinary tract, is evident if surgical formation of a vagina is contemplated. The presence of an ectopic pelvic kidney may interfere with securing proper depth of the new vagina. A pelvic kidney and its ureter may be injured during the surgical procedure, and such trauma is particularly significant if the pelvic kidney represents a solitary kidney. Urographic evidence of anomalies of the urinary tract was observed in 26 of 72 patients with vaginal agenesia who had undergone examination. Of these anomalies 18 were significant, and of the 18, those of most frequent occurrence were renal agenesia and renal ectopia. Physical examination and surgical exploration revealed seven additional cases of anomaly of the urinary tract. It is apparent, therefore, that all patients with vaginal agenesia should undergo urological examination, inasmuch as one-quarter of the authors' patients had significant anomalies of the urinary tract.

Premenstrual Tension.

J. H. MORTON, H. ADDITON, R. G. ADDISON, L. HUNT AND J. J. SULLIVAN (*Am. J. Obst. & Gynec.*, June, 1953) present a study of premenstrual tension amongst the inmates of a State prison farm. They found that of the 249 women studied 51% suffered from premenstrual tension. Sugar tolerance tests showed a hypoglycæmic type of curve in this phase, and vaginal smear examination indicated hyperœstrogenic stimulation. Review of the inmates' records indicated that 62% of the crimes of violence were committed in the pre-menstrual week. Treatment with vitamin *B* complex, ammonium chloride and a high protein diet resulted in symptomatic improvement in 79% of cases with increased work output, improvement in behaviour and attitude, fewer requests for analgesic and sedative medication, less punishment for infraction of the rules and considerable increase in the general morale.

X-Ray Diagnosis of Uterine Pathology.

ARTHUR M. DAVIDS (*Am. J. Obst. & Gynec.*, June, 1953) gives the following indications for hysterography: abnormal uterine bleeding, dysmenorrhœa, sterility despite normal tubal patency, pre-operative investigation prior to myomectomy. An aqueous radio-opaque medium is used. Endometrial polypi, submucous and intramural fibroid tumours, hyperplastic endometrium, adenomyosis, fundal carcinoma, tuberculous endometritis, congenital abnormalities of the cervix and fundus of the uterus, cervical stricture, chronic endocervicitis and pregnancy and retained secundines have been clearly demonstrated. Allergy to the medium and pelvic inflammatory reactions are rare following the test.

Diagnostic Aids for Ectopic Pregnancy.

EDWARD G. WINKLER AND VINCENT J. CAPRARO (*Am. J. Obst. & Gynec.*, February, 1953) have reviewed 100 cases of proved ectopic pregnancy and 119 cases in which ectopic pregnancy was suspected but not found. They consider that unruptured ectopic gestation is perhaps the most difficult gynæcological lesion to diagnose. Biological pregnancy tests, dilatation and curettage, pelvic examination under anæsthesia and cul-de-sac aspiration are discussed as diagnostic aids in this condition. The biological pregnancy tests were performed in 18 cases of ectopic gestation and the results were positive in seven cases. The result of the pregnancy test was not positive in any cases in which vaginal bleeding had been present for more than nineteen days. The authors infer that this test is of value in ectopic pregnancy only if vaginal bleeding has been present for less than approximately three weeks. Dilatation and curettage were performed on 15 patients, and four patients passed tissue, which was available for microscopic examination. Decidua without villi was present in seven cases. If vaginal bleeding had been present for more than twenty-one days, no decidua was found and the endometrium was in the proliferative phase. The authors conclude that dilatation and curettage after twenty-one days from the onset of bleeding is not of diagnostic aid. Pelvic examination under anæsthesia usually combined with cul-de-sac aspiration is performed by the authors as a routine procedure in all cases of suspected ectopic pregnancy, except in the presence of shock or when the diagnosis is obvious. In numerous cases pelvic masses were easily felt under anæsthesia which were not palpable in the conscious patient. Cul-de-sac aspiration was performed in 197 cases and is considered by the authors to be the most important single aid in the diagnosis of suspected ectopic pregnancy. The technique of cul-de-sac aspiration is described, and the significance of fluid withdrawn is discussed. There were 10 false positive results and one false negative result in this series. The

correct pre-operative diagnosis was made in 92 of the 100 cases of ectopic pregnancy. In all eight cases in which the pre-operative diagnosis was incorrect, cul-de-sac aspiration had not been performed. Pitfalls in diagnosis when ectopic gestation was incorrectly diagnosed were largely due to abnormal uterine pregnancy, pelvic inflammatory disease and endocrinopathy. There were two instances of accidental perforation of the bowel and withdrawal of fæces in 197 cul-de-sac aspirations. No ill effects resulted. The authors conclude that history and physical findings alone are not sufficient in many instances for the diagnosis or exclusion of ectopic pregnancy. Cul-de-sac aspiration and examination under anæsthesia are the most important diagnostic aids. They are simple and of negligible risk to the patient.

Lymph-Node Involvement in Cervical Carcinoma.

C. P. CHERRY, ALFRED GLÜCKSMANN, RUTH DEARING AND STANLEY WAY (*J. Obst. & Gynæc. Brit. Emp.*, 1953) report a study of lymph node involvement in 213 selected cases of squamous cell carcinoma of the cervix. All patients had been classified in clinical stages I and II and had received initial treatment with radium, followed by hysterectomy and lymph-node dissection six to eight weeks later. Lymphatic metastases were found in 96 patients (45%) at the time of operation. Outstanding difficulties in accurately assessing the clinical stages are errors in assessing parametrial thickening and inability to diagnose lymph-gland involvement clinically. Exact agreement between clinical staging and operative findings was present in only 23% of cases. The authors found that 58% of lymph nodes palpable at operation contained tumour, and conversely 24% of impalpable nodes contained cancer. The anatomy of the lymphatic drainage of the cervix is described. Lymph reaches the common iliac and periaortic nodes by two chief routes. The chief route and the more important path of cancer spread is via the paracervical, external iliac and obturator groups of glands; the other less common route is via the hypogastric node group. Of 91 cases in which lymph nodes were involved, the spread was along the external iliac and obturator group in 69 cases, via the hypogastric route in five cases, and by both routes in 10 cases; in seven cases the pattern of node involvement was anomalous. The lymph nodes were involved in 34% of stage I cases and in 51% of stage II cases. Carcinoma was found in lymph nodes with 31% of differentiating tumours and 49% of anaplastic tumours. Patients with persistent carcinoma after irradiation had lymphatic involvement in 51% of cases, while those patients with no residual tumour after irradiation had a 30% lymph-node involvement. Bilateral lymphatic extension was found to be more frequent when the primary tumour persisted after radium treatment, and these cases showed more frequent involvement of the distant node groups. The authors conclude that there is a significant correlation between clinical stage, lymphatic spread, histological type of tumour and presence or absence of cancer at the cervix after preliminary radium treatment. They consider that this indicates that the local extent of the tumour as well as its lymphatic spread is correlated and presumably partially determined by its histological type, which in turn appears to influence the behaviour of the tumour under irradiation.

Intravenous "Pitocin" Infusion in Labour.

RAYMOND H. KAUFMAN, STANLEY M. MENDELOWITZ AND WILFRED J. RATZLAN (*Am. J. Obst. & Gynec.*, February, 1953) report observations on 1000 patients treated by intravenous "Pitocin" infusion in labour and a detailed study of 100 consecutive cases. Fifty patients were primigravid and 50 were multiparous; the treatment was administered to stimulate labour already in progress in 54 cases and as an attempt to induce labour in 46 cases. Contraindications to this method of treatment include disproportion, abnormal presentations, *placenta prævia* and lack of progress in dilatation and descent despite good contractions in patients of great parity. The authors prefer "Pitocin" to pituitrin for routine treatment and consider that a dilution of seven and a half minims of "Pitocin" in 500 mils of 5% glucose in water or saline (1:1000 dilution) is satisfactory. The drip infusion is given at a rate of 10 to 12 drops per minute for the first thirty minutes and gradually increased to 20 to 30 drops per minute. The importance is stressed of excluding disproportion before treatment is commenced, and careful observation of the fœtal heart rate is recommended during the first hour of treatment. In the absence of complications the authors advise continuation of the "Pitocin" drip until well after the end of the third stage of labour. Results achieved by this method in stimulating labour already in progress were satisfactory in all but two of the 54 treated patients. The degree of dilatation of the cervix and the condition of the membranes at the commencement of treatment did not appear to influence the response to intravenous drip "Pitocin" infusion. Observations on 24 patients treated electively after the commencement of labour suggest that normal physiological labour pains can be further stimulated with reduction in the duration of labour without ill effect to the patient. The treatment of 18 patients suffering from primary uterine inertia was satisfactory in all cases. The authors consider that the continued use of the "Pitocin" drip in cases of uterine inertia that do not readily respond is not only contraindicated but dangerous. Satisfactory results were obtained in the treatment of nine cases of secondary uterine inertia, and, combined with saddle-block anæsthesia, two patients with a persistent cervical rim were successfully treated. Induction of labour by this method was successful in 42 patients and failed in four patients. "Ripeness" of the cervix is the most important factor in the success of induction of labour, according to the authors. It was noted that an increase in post-partum atony of the uterus was prone to happen if the infusion was discontinued prior to delivery of the placenta. Complications occurring in the series included tetanic uterine contractions in three patients and adherent placenta requiring manual removal in one case. No effect on either the blood pressure or pulse was noted in any patients treated by the technique described, and there were no maternal or fœtal deaths in the series. The authors conclude that the intravenous administration of "Pitocin" by dilute infusion is a safe and efficient means of stimulating labour when properly controlled and is efficient for the induction of labour when the cervix is "ripe".

The Helicoid Uterus.

B. H. SHEARES (*J. Obst. & Gynæc. Brit. Emp.*, April, 1953) has given the name of "helicoid" uterus to a type of asymmetrical uterus characterized by a spiral twisting of the organ, deviation to one side of the mid-line and better development of one-half of its two components. The examination of X-ray films of patients submitted to hysterosalpingography revealed this asymmetrical deformity of the uterus. Deviation of the body of the uterus was observed in 48 or 1·5% of 3145 women investigated for infertility by this means. Confirmation of this radiological observation was made by examination under anæsthesia. Further studies were undertaken over the five-year period 1946 to 1950 on genital anomalies in a total of 29,726 gynæcological patients and post-mortem examination of 803 stillborn babies. There were 134 patients with genital anomalies among 29,726 patients, and the commonest anomaly was "helicoid" or spirally asymmetrical uterus. The characteristics of the "helicoid" uterus as described by the author are deviation of the uterus to one or other side of the mid-line, better development of the uterus on the side to which it is deviated, and deviation of the uterine cavity as indicated by the passage of a sound. Post-mortem examination of stillborn and very young female babies showed that 6·7% had major or minor anomalies of fusion of the Müllerian ducts. In a total of 54 such anomalies a "helicoid" uterus was present in 44 babies. Extragenital anomalies were four times more common in subjects with genital anomaly than in those without such anomaly. The author considers that the term "asymmetrical uterus" does not adequately describe this congenital abnormality of the uterus. He observes that the uterus develops by the fusion of two cylindrical ducts, and its shape and muscle fabric can be explained on geodesic principles. Varying degrees of dilatation and twisting may be exerted on one or both cylinders after the fashion of the glass-blower. He concludes that the spiral twist and assymmetry in the "helicoid" uterus are due to inequality of growth rate of the two Müllerian ducts. Besides this spiral twisting on the longitudinal axis, there is also an element of deviation, either an exaggeration of anteversion or retroflexion or lateral deviation.

Pemphigus and Pregnancy.

M. H. SAMITZ, M. S. GREENBERG AND J. M. COLETTI (*Arch. Dermat. & Syph.*, January, 1953) report a case of pemphigus associated with pregnancy. The severity of the disease varied during the three trimesters of pregnancy. It lessened in the first and third trimesters; the authors suggest that this may have been related to the rise in output of endogenous adrenal cortex hormones. The effects of ACTH and cortisone are described. The fœtus was not affected by disease or treatment.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

LXXXII.

TREATMENT OF CONGESTIVE CARDIAC FAILURE.

CONGESTIVE CARDIAC FAILURE is the name given to the symptom complex consisting of shortness of breath, œdema, distended veins, liver enlargement, moist sounds in the lungs and the presence of an obvious or reasonably presumed cardiac abnormality. This syndrome represents a disturbance in the circulation and storage of body fluid which stems from an abnormality of cardiac function.

Failure of the myocardium to deliver adequate energy to the circulation may result from a variety of causes. These include damage to muscle tissue by inflammatory processes, inadequacy of the coronary blood supply, metabolic failure of the cells as in beriberi, and abnormal rhythms arising either from disease processes in the myocardium or without apparent cause. Long-continued hypertension may also lead to myocardial failure. Sometimes cardiac output may fail because of the mechanical disturbances produced by valvular stenosis, by constrictive pericarditis which prevents diastolic expansion of the heart, or by a pericardial effusion which produces tamponade.

An excessive accumulation of body fluid of substantially normal electrolyte content is the basic disturbance present in congestive cardiac failure. This excess fluid is found in all the fluid compartments, being greatest in the extracellular extravascular compartment, less in the vascular compartment and least of all in the intracellular compartment. The excess in the vascular compartment gives the clinical appearance of an overfilled venous system with distended veins and enlarged liver. The excess in the interstitial spaces shows as œdema and collections of fluid in serous cavities—pleural, peritoneal and pericardial.

In congestive failure the accumulation of fluid usually undergoes cyclic variations in which periods of fluid loss and fluid retention alternate. This feature is implied in the description "attacks of congestive failure". Ultimately there is a greater and greater accumulation of fluid, which must reach a limit determined by the resistance of the skin to stretching. When this limit is reached, œdema fluid frequently collects in blebs in the skin or oozes through the skin.

Associated with the phase of fluid-retention there is a diminution of urinary output; and if this falls below a certain limit, nitrogenous end-products will be inadequately excreted, and uræmia will become superimposed on the congestive failure. However, even at this stage of congestive failure an increase of fluid intake usually produces an increase of urinary output.

In the later stages of congestive failure there is often considerable generalized muscle weakness and some mental deterioration. This weakness and exhaustion may lead to malnutrition, especially if the patient is dependent on her own efforts to obtain food. As a result of this chain of events many patients with congestive cardiac failure are cachectic, grossly œdematous and perhaps uræmic.

These physiological disturbances form a vicious circle, so that once cardiac inadequacy has led to the accumulation of fluid the condition is likely to be progressive. If the sequence of events can be broken, the normal mechanisms of fluid control will return the patient to a state approaching normal water content and balance.

The treatment of congestive cardiac failure must be based on two well-established therapeutic principles: first, to remove the prime or the precipitating cause if possible, and secondly, if this is impossible, to aid the physiological mechanisms to return the patient towards a normal state.

Of the many factors which may precipitate congestive failure abnormal rhythms constitute the most commonly remediable group. Control of auricular fibrillation with digitalis preparations or the abolition of ectopic rhythms with quinidine often leads to rapid recovery from the congested state.

In a similar manner, treatment of thyrotoxicosis with antithyroid drugs or beriberi with thiamine or the correction of severe anæmia may produce rapid relief. Rapid recovery will also follow the removal of pericardial fluid which is causing tamponade.

It may be possible on occasion to relieve by surgery the congestive failure following constrictive pericarditis, gross valvular stenosis or arterio-venous fistula.

A not uncommon precipitating cause of congestive failure in patients with inadequate cardiac function is an acute respiratory infection, and relief can frequently be obtained by treatment of this condition.

It is not intended in this article to consider further the treatment of these factors but to deal with the problem of assisting the body mechanisms to return the fluid volume to normal limits. The therapeutic aids to be used for this purpose are bed rest combined with adjustments to dietary and fluid intake, sedation and oxygen administration; diuretic and cardiac drugs; mechanical drainage of fluid collections, and occasionally venesection and cation exchange resins.

Bed Rest and Dietary Measures.

Bed Rest.

It is well known that patients with cardiac failure excrete greater quantities of urine in bed at night than when ambulatory during the day. This is a reversal of the normal daily rhythm and accounts for the disappearance overnight of œdema fluid, which, in early cases, collects in the lower parts of the legs during the day. In a high proportion of patients, even with advanced congestive failure, continuous bed rest will produce marked diuresis, which leads to removal of all œdema. The onset of this diuresis may in some cases be delayed several days after confinement to bed, and frequently three to four weeks will elapse before the patient's fluid volume reaches normal.

Sodium Restriction.

It is important for the patient to eat a mixed diet adequate in caloric value and vitamin content. However, as the excretion of excess body fluid involves the excretion of excess electrolytes, of which sodium is the chief cation, and as there is an upper limit to the amount of sodium salts that can be excreted by a given volume of urine, this diet must not contain an excessive quantity of sodium. The patient's food should be cooked without salt or sodium bicarbonate and no salt should be added on the plate. Salt-free butter should be used. A full diet prepared in this way usually contains about two grammes of sodium per day.

Provided that the intake of salt-free liquids is of the order of two litres per day, this degree of restriction of sodium intake will usually prove adequate. If, however, urinary volumes of the same order cannot be maintained, greater restriction of sodium intake may be needed. In a few cases it may be necessary, for a period, to reduce the intake of sodium to the region of 250 milligrammes of sodium per day. In such cases the salt content of the patient's drinking water must be considered, for, whilst in many cities the water supplied is almost sodium-free, in some regions with hard water supplies the sodium content may be as high as 0·5 gramme per litre. In these places special measures will need to be taken to reduce the sodium intake.

In obese patients benefit will be derived by restricting the caloric value of the diet sufficiently to produce a gradual loss of surplus fat.

Fluid Intake.

In most patients even when grossly œdematous, an increased intake of fluid is followed by an increase in urine output, so that restriction of fluid intake of these patients should never be recommended. The actual intake necessary will depend somewhat on climatic conditions, which determine the fluid lost by the skin and lungs for temperature regulation. This loss is valueless for the removal of the excess electrolytes and must be compensated by a rise of fluid intake. In most circumstances an intake between two and three litres of salt-free liquids per day should prove adequate to provide the necessary volume of urine to carry away the electrolytes excreted.

Many patients with long-standing and gross congestive failure are so debilitated and mentally lethargic that feeding themselves is a task beyond their capacity. In these cases it is of value to insert a small stomach tube and to allow a continuous slow drip of salt-free fluid to run through it. At appropriate times food, such as egg flips or cooked food macerated in a blender, may be introduced by the same route.

Posture.

The posture adopted by the patient during this bed rest phase is of importance. In the early distressing stages a sitting-up position is most comfortable. This position implies that the legs hang down, and is difficult to achieve without a specially constructed bed, unless, for the first few days, the patient is nursed in an arm-chair. Once diuresis is well

established, a sitting posture in bed with the feet up is more comfortable and is indeed desirable. If the legs are left hanging down, gross œdema may persist below the knees, even when it has left the rest of the body.

Frequently patients with congestive failure are restless. This may be due to lack of oxygenation and can often be effectively relieved by the continuous administration of oxygen through an intranasal catheter at a rate of not less than four litres per minute. If this measure does not relieve the restlessness, then sedation may be necessary.

In elderly patients thrombo-embolic phenomena are not uncommon. To minimize the risk of these, the patient must be encouraged to perform active movements. Many writers have suggested that all these patients should be treated with anticoagulant drugs as a prophylactic measure.

Diuretic Drugs.

Of the various drugs used to produce diuresis, mercurial diuretics administered by the intramuscular route are the most potent. These compounds cause excretion of sodium and chloride in the urine together with an appropriate quantity of water as the solvent. In congestive failure the excretion of these drugs through the kidneys is slowed, and they need not be given more frequently than once every forty-eight hours.

The clinical response to mercurial diuretics exhibited in this manner varies from patient to patient. In some, a large increase in urine-flow commences within a few hours or less and gradually diminishes over several days until the patient is œdema-free. At this stage diuresis may occur after each injection but be followed by fluid retention the next day. The other common response to mercurial diuretics is for a gradual increase in urine excretion to develop over several days, reach a maximum and then decline, to be followed by intermittent diuresis. Occasionally the diuretic response to these drugs is poor. In such cases the administration of ammonium chloride by mouth to produce acidosis will often satisfactorily enhance their activity. Combination of mercurial diuretics with theophylline also enhances their activity, and this combination is made in some mercurial preparations.

The object of using mercurial diuretics is to force the output of fluid from the body and so accelerate the diuresis which usually follows rest and dietary treatment. They may be effective when the latter therapy fails to produce a diuresis. As they are potent drugs, capable of producing toxic reactions, any failure to produce a diuresis by their exhibition should lead to a reassessment of the patient's requirements rather than to persistence in their use. Because occasionally mercurial diuretics produce toxic reactions, such as diarrhœa and purpura, a test dose of half the normal quantity should be used whenever they are administered to a patient for the first time. If severe toxic reactions follow this test dose, BAL will usually be a satisfactory antidote.

Cardiac Drugs.

The value of the cardiac drugs digitalis, strophanthin and quinidine in the treatment of congestive cardiac failure is much debated. The presence of an abnormal cardiac rhythm is a clear indication for their use. Thus digitalis glycosides should be used if auricular fibrillation is present, and quinidine if the abnormal rhythm arises from a ventricular ectopic focus. In the acute phases of congestive failure, when venous pressure is high, the intravenous use of a digitalis glycoside or a strophanthin preparation may produce a dramatic lowering of venous pressure and initiate diuresis.

This group of drugs may be divided conveniently into long-acting and short-acting types, and it is an advantage for the practitioner to select one from each group for routine use. The detailed experience gained in this way will offset minor gains from the special selection of a particular preparation for the individual patient.

The long-acting members of the group are the tincture and dried leaf of digitalis and digitoxin, whilst digoxin and ouabain have a relatively short action.

For emergency use by the intravenous route, digoxin or ouabain can be used.

Paracentesis.

In congestive failure there may be large collections of fluid in the pleural and peritoneal cavities which produce respiratory embarrassment. Rapid relief of dyspnœa and restlessness follows their removal. These collections should always be sought, as their removal can rapidly alleviate distressing symptoms.

Venesection.

When venous pressures are high and the patient is in respiratory distress, relief can be obtained by a rapid venesection and removal of 500 mils of blood. However, unless this initiates diuresis, the relief obtained will usually be temporary.

Resins.

Cation exchange resins are non-absorbable compounds which can exchange hydrogen ions of their structure for other cations in their surroundings. Their use in the treatment of congestive cardiac failure is recommended on the basis that they will accept sodium ions from digested food or from intestinal secretions and so lead to the excretion of sodium from the body. By this means it is hoped to produce the effects of a low sodium intake whilst still allowing some salt to be taken with food. These resins are more avid for calcium and potassium ions than for sodium, and if used in an uncontrolled manner can lead to states of hypopotassæmia and calcium depletion. Moreover, this feature impairs their ability to absorb sodium. The liberation of considerable quantities of hydrogen ions in exchange for the cations accepted leads to severe acidosis, which enhances the action of any mercurial diuretics given at the same time.

Exchange resins are bulky and unpleasant for the patient to take, they are expensive and achieve little that cannot in most instances be achieved by more effective and cheaper methods. Occasionally they will be found of value in reducing the frequency with which mercurial diuretics need be given or in avoiding the need for their exhibition. However, even in these cases the danger of producing severe acidosis and hypopotassæmia means that resins cannot be given continuously and indefinitely.

Management in Refractory Cases.

Whilst the foregoing methods of management for cases of congestive failure will usually keep the patient free from œdema, in some cases patients may develop refractory œdema and in an occasional case the condition will be refractory from the commencement of treatment.

In such cases the following considerations are important. First, is there an ætiological cause for the congestive failure which could have been removed? Secondly, have the lines of therapy indicated been thoroughly instituted? Thirdly, if the first two of these questions are satisfactorily answered, has the therapy used produced further physiological disturbances?

Of these three only the last question needs elaboration. An important aspect of the management advocated is interference with the electrolyte balance of the body. This is achieved by restriction of intake (low sodium diets) or by administration of exchange resins to interfere with electrolyte absorption and to some extent withdraw electrolytes from the body, or by the forced excretion of electrolytes in the urine produced by mercurial diuretics. These actions may lead to a variety of states in which the body fluids are depleted in salt, chloride, sodium or potassium or may lead to a hyperchloræmic acidosis. Correction of these abnormal conditions will often lead to effective diuresis. The certain recognition of these conditions requires good biochemical facilities, for they are not readily separated on clinical observations alone.

Apart from the conditions just mentioned, an occasional patient with congestive failure will remain refractory to the treatment outlined. For these patients acupuncture of the dependent legs should be used. This may be done by making multiple incisions through the skin or by inserting Southey's tubes into the subcutaneous tissue. If an aseptic technique and an antibiotic cover be used, infection of the wounds should not occur. This procedure allows the œdema fluid to drain from the body, and frequently after this relief the patient will again become responsive to the usual therapeutic measures.

Maintenance Management.

After the patient has recovered from an episode of congestive failure, judicious balancing of the measures advocated will enable him to be kept œdema-free. The most accurate method of following the efficacy of this control is to record the patient's weight regularly. This can be most usefully done by daily weighing at a fixed time each morning before breakfast and after the bowels and bladder have been emptied. In a normal person, who is not laying down fat or eating an inadequate diet, the weight at these times will be held constant to ± 1 pound.

To obtain the patient's "dry" or œdema-free weight he should be weighed daily during the latter part of treatment

of the acute episode, and when the daily weight has become constant this value should be taken as the reference "dry" weight. It must be pointed out that the patient will have lost pitting œdema while still some pounds heavier than this "dry" weight.

Periodically the "dry" weight should be redetermined, for, as the cardiac disease progresses, the patient tends to become emaciated and his "dry" weight to diminish. Under these conditions the maintenance of a steady weight may be misleading and be due to the gradual accumulation of œdema which has been offset by a drop in "dry" weight.

If the morning weight is steadily rising, then more vigorous therapy must be instituted. The first alteration made should be a period of bed rest, and frequently this will produce the necessary diuresis. In fact, so effective is this simple measure that in a great many cases the maintenance management should include a rest of one day in bed each week.

Conclusion.

In conclusion, it will be noted that there is in most cases of congestive cardiac failure no one form of therapy which is universally effective. By a judicious combination of the methods outlined the majority of patients will be kept œdema-free. There will, however, be a few in whom the condition is refractory to treatment, and generally laboratory assistance will be needed to assess the correct treatment for these patients.

T. E. LOWE,
Melbourne.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on November 27, 1952, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, DR. R. H. MACDONALD, the President, in the chair.

Bronchiectasis.

DR. J. M. ALEXANDER read a paper entitled "Bronchiectasis" (see page 525).

DR. I. MONK read a paper entitled "The Surgical Treatment of Bronchiectasis". He said that before surgical treatment was recommended in a given case of bronchiectasis a number of questions had to be answered in the minds of those advocating operation. Such a radical step presupposed that the condition was serious with regard to the health or even the life of the patient concerned; that the condition was incurable or could not be relieved by simple means; that the risks of operation were not greater than the disease itself; and that operation would bring relief or even cure to the patient. The answers to those questions were sometimes far from clear. At the outset it had to be realized that the term bronchiectasis merely meant a dilatation of the bronchial tubes, and that that was common to many diseases. For example, bronchiectasis might be demonstrated in patients suffering from tuberculosis, asthma and emphysema, and although those findings might influence the treatment in many cases, they were usually of subsidiary importance. The particular disease process (or group of diseases) under discussion was that characterized, often from early childhood, by chronic cough and the presence of purulent sputum.

Dr. Monk went on to say that several decades earlier large series of patients suffering from the type of bronchiectasis under consideration were followed, and all the investigations showed that the condition caused considerable incapacity. In a certain proportion of cases (up to 20% in some series), death resulted within five to ten years from the time of diagnosis. That was not true at the present time, although the present position in the world generally, and in Australia in particular, was hardly known. Many patients suffered invalidism as a result of bronchiectasis in Sydney. Dr. Monk said that he himself had had occasion to examine in the last three years some 30 or 40 patients who drew an invalid pension for the complaint, and there were probably many more such people who had not come to his notice. The risk to life was even more difficult to determine. By writing to two neurosurgeons practising in different hospitals, and with two cases observed in the last three years, he had been able to learn that in Sydney eight patients had died of cerebral abscess in the last five years. It seemed very likely that many more had suffered that complication, and it might be that in relation to the "bronchiectatic" population of New South Wales that represented a significant percentage of deaths. Those superficial observations indicated that knowledge of the problem of bronchiectasis as a whole was very incomplete.

Dr. Monk then said that bronchiectasis could undoubtedly regress. He had seen a patient, aged twenty-five years, with up to two ounces of purulent sputum a day, and crowding and cylindrical dilatation of the right lower lobe bronchi, lose all symptoms after a *régime* of physiotherapy of one year's duration and with reversion of the bronchogram to normal. That did not happen often in adults; but experience at the Royal Alexandra Hospital for Children would suggest that it happened more frequently in children than was generally realized. The reversibility of bronchiectasis in many cases could be determined only after a period of a year or two, during which the patient had to be taught to keep the bronchial tree dry at all times and to restore function to the affected parts of the lung. That implied that adequate chest physiotherapy must be available. Dr. Monk said that in passing he wanted to mention that it was his opinion that the principles of chest physiotherapy were poorly appreciated in Sydney, and that too few physicians were interested in these patients. The majority of bronchiectatics could be taught a way of life that enabled them to enjoy reasonable well-being and lead a comparatively normal and useful existence. The relief which could be given by those means, as well as the reversibility of the condition in children, had to be ascertained before operation could be recommended.

Referring to the risks of treating bronchiectasis surgically, Dr. Monk said that they depended on the facilities available and on the skill of those responsible for the management. The assessment of the patient and the disease, the preparation for operation, the anæsthesia, and the post-operative care were the factors which determined the results of operation, for if any of those factors were deficient, the success rate would be low no matter how skilfully the operation was performed. With proper selection and care, the risks from operation were negligible. Dr. Monk knew of two surgeons who collectively had operated on over 300 patients without a death. Reported series, and his own experience of over 100 resections of the lung for tuberculosis without a death, would suggest that the risks were directly proportional to advancing years and to the presence of disease of such extent that operation on both lungs was necessary.

Dr. Monk then discussed the association of upper respiratory tract disease with bronchiectasis, and said that it required special consideration. There was no scientific evidence, as commonly believed, that sinusitis caused bronchiectasis. On the other hand, it was not uncommon to find that after removal of a bronchiectatic portion of lung troublesome sinusitis regressed or even cleared up completely. As so little was known about the ætiology of bronchiectasis, it seemed reasonable to think, on theoretical grounds, that the constant aspiration of septic material might be a cause in some cases. It was certainly true that each condition affected the other adversely. In a patient with bronchiectasis radical surgical treatment of the sinuses should be avoided if possible, or deferred until after lung resection had been completed if that was to be undertaken.

Dr. Monk then said that the real key to the management of bronchiectasis was the degree of "sepsis" which the patient suffered, the outward and visible manifestations of which were the quantity and quality of the sputum present. Most children, and many women, did not produce sputum. Some adults, particularly men, did not seem to regard the expectoration of even three or four ounces of purulent sputum per day as abnormal. Therefore special efforts had to be made to ascertain the amount and type of sputum present. Conversely, the necessity for any expectoration whatsoever might be regarded by the fastidious patient with such distaste that the account of his symptoms was exaggerated and inaccurate. It was essential that an accurate assessment of the sputum be made, and it might be necessary to perform a bronchoscopic examination or to admit the patient to hospital for observation to ascertain those simple fundamental facts. Hæmoptysis alone was sometimes an indication for operation. That might occur episodically, often along with an exacerbation of infection, in that type of bronchiectasis characterized by "septic" manifestations. It might occur also as the principal, or sole, symptom in that type of disease various labelled as saccular or cystic bronchiectasis, or cystic disease of the lung. There were many patients in whom bronchiectatic changes could be demonstrated but for whom operation was absolutely contraindicated. Some of them suffered from a generalized affection of the respiratory mucous membranes. Close scrutiny of the bronchogram would reveal that the dilatation was widespread and that many bronchi which on superficial observation appeared normal showed minimal changes; that crowding was minimal

or absent; that no saccular changes were present; and that dilatation might be proximal rather than distal. There were other variations, the significance of which was ill understood. Close observation of the patient would reveal that nasal symptoms were prominent; the ear, nose and throat surgeon would report that an antral washout revealed little or no evidence of mucopus. Close questioning or actual observation showed that rarely, if ever, was true purulent sputum produced, and that the sputum was usually mucoid or watery and frothy. Many of the patients were subject to generalized wheezing or were frankly asthmatic, whilst others were round-shouldered, with a tendency to a "barrel chest" and had evidence of emphysema. Those patients formed a group having a variety of unclassified diseases. Although there were "borderline" cases, operation would bring no relief and would make those people worse.

Referring to patients suffering from bronchiectasis who had passed the age of thirty years, Dr. Monk said that the symptoms of cough and sputum often became less prominent and were replaced by dyspnœa. Therefore, patients over the age of thirty years should be reviewed critically. Conversely, during the early years of life, whilst growth was occurring, the indications for operation should be very definite, because during that period it was difficult sometimes to be sure, for technical reasons, of the exact extent of the disease, and in some cases the condition might be reversible. As a guiding rule, if a child was able to attend school without unduly long periods of absence, operation should not be recommended, or only after a period of several years, when it was certain that no further improvement was possible. If the disease was bilateral and multilobar, as it often was, then operation was usually not possible or was impracticable. The evidence for advocating palliative surgery, bronchiectatic segments being left behind, was unconvincing. Sometimes the patient was unrelieved, or at best had to carry out the same *régime* to control cough and sputum. Occasionally, if gross disease was eradicated from one lung, minimal disease in the other lung might cause minimal symptoms. However, there was no way of determining that before operation, and in general a plan of surgical treatment should involve the eradication of all the disease, even if that meant operating on both sides. An exception to that was the complication of hæmoptysis, when one's hand might be forced. Caution should be exercised in recommending operation to patients in whom cylindrical dilatation only was present and there was lack of crowding of the bronchi. Those changes might be part of a more generalized disease, and usually either sufficient relief could be obtained by simple means, or in the case of a child the condition might be reversible.

Dr. Monk finally said that it seemed that operation should be recommended infrequently for bronchiectasis, and in relation to the total number of cases that was probably true. However, there were certain definite indications for operation. Ideally the patient should be between the ages of ten and twenty years. There should be definite evidence that purulent sputum was, or had been, present, that the disease was irreversible and could not be controlled satisfactorily by simple means, and that the disability was sufficient to warrant operation. Every lobe and segment should be visualized in the bronchogram on both sides beyond doubt, and the diseased area should be sufficiently localized to be technically resectable. The ideal type of disease for surgical treatment was that confined to one lobe, in which there were gross finger-like or saccular dilatation and crowding of the bronchi. Although the indications were often extended beyond those given in all respects, and provided that the general conduct of the surgical management was adequate, the more closely the indications were observed, the more often would cure of the patient result.

DR. A. G. MCMANIS said that he had been particularly interested in Dr. Alexander's discussion of the ætiology of bronchiectasis, especially what he had said about the part played by some congenital defect. In England, at an infectious diseases hospital, it had been decided to examine radiologically the chests of everybody who had had whooping-cough; in over 60% an area of segmental or lobar atelectasis was found, but only 3% subsequently developed bronchiectasis. The patients had infection and atelectasis, but there was some other factor that determined the development of bronchiectasis, and that factor might possibly be some congenital weakness. Dr. Alexander had said that the two commonest causes of bronchiectasis were recurrent bronchitis and whooping-cough; next were pneumonia and bronchopneumonia. Dr. McManis asked Dr. Alexander how he determined that recurrent bronchitis and pneumonia were causes of bronchiectasis; to him they were symptoms of bronchiectasis. Those were cases in which no other ætiological factor was obvious, and therefore it was said that bronchitis and pneumonia were the causes. Tuberculosis was an important ætiological factor. Certainly it was not seen much in children; but Brock had first drawn attention to the fact that affected people developed symptoms of bronchiectasis in middle life—"post-tuberculous bronchostenosis". It usually affected the middle lobe, but it could affect all parts of the lung. Dr. McManis went on to say that he had also been interested in the remarks on physical examination; Dr. Alexander had said that rales were always present. That had not been his (Dr. McManis's) experience. The majority of patients he examined had no rales and, in those who had, the rales cleared up with physiotherapy. In his opinion the commonest sign was clubbing of the fingers.

DR. D. G. VICKERY said that he had one comment to make; it concerned Dr. Alexander's statement that in 85% of cases of bronchiectasis the condition was bilateral, and that in the great majority the right side was less involved than the left side. At the Royal Alexandra Hospital for Children, when the diagnosis was made early, it was found that drainage was very much better if physiotherapy was instituted at an early date. Dr. Vickery thought that complete recovery would occur in such cases if the diagnosis was made early, and that the children would not present such surgical problems as in the past. There was a much better chance that, after removal of the lower lobe of the left lung and the lingula, and with continued physiotherapy, the children would completely recover. Dr. Vickery said that he would like to hear more on the subject from physicians and surgeons dealing with adult patients.

DR. COTTER HARVEY first referred to Dr. Alexander's tabulation of the ætiological sequence, in which at the end in twelve cases bronchiectasis was stated to be of insidious onset. After hearing what Dr. McManis had said, Dr. Alexander might have thought that some in the top group could be transferred to that group. Dr. Harvey said that he would like to submit that the cause could be a foreign body, the history of which was completely submerged. It had been his experience that the best results had been obtained when a foreign body was found accidentally or perhaps at operation. There was a localized septic process, and removal of that segment brought uniformly favourable results. Dr. Harvey thought that such a condition was more common than was realized, and that it was the best indication for lobectomy. Referring to the outlook after lobectomy, Dr. Harvey pointed out that the question of gravity was involved; another lobe became dependent and might therefore be affected. Referring to prophylaxis, Dr. Harvey said that Dr. Claggett, when he was in Australia, had said that bronchiectasis was now uncommon in the United States, because of the use of the antibiotics. Dr. Harvey had not seen that that was so in Australia. Dr. Alexander had said that if a child had intervals of freedom from cough, then it was not suffering from bronchiectasis. Dr. Harvey said that that was probably true; but he was sure that it was not true in adults, in whom bronchiectasis could be a perfectly dry and silent affair. One patient insisted that he was perfectly well and had never had a cough; the fact that he had bronchiectasis was picked up by pure chance, in a mass survey. Dr. Harvey said that he had been glad to hear Dr. Alexander's remarks about the useless removal of tonsils and adenoids; he thought that the time had arrived when the oto-rhinolaryngologists should be seriously requested to review the position. Referring to the surgical treatment of bilateral bronchiectasis, Dr. Harvey said that it had been found that the removal of the more seriously affected lobe enabled the patient to get along, and that patient sometimes did not need a second operation. He was not sure of the place of surgery in bilateral disease. Dr. Monk placed a high value on physiotherapy and had said that it was very good if properly carried out. Dr. Harvey thought that the points that Dr. Monk had made about the failure of physiotherapy were fair; but he was not sure that Dr. Monk was correct in his contention that chest physiotherapy in Sydney was not so good as elsewhere. Dr. Harvey had recently seen the text of lectures on the subject that formed part of the training of the physiotherapists and had thought them very good. He said that the physiotherapists who had been abroad were sometimes "tops" and the results they had achieved had surprised him. In the treatment of bronchiectasis he would avoid surgery if it was possible at all, and he thought that it would be used less and less. Physiotherapy for children was difficult, but he had received from England some cards giving directions about it for parents, and they should be helpful. The cards were sold at sixpence each. Dr. Harvey said that the indications for operation as laid down by Dr. Monk seemed adequate, with one addition — namely, the presence of tubercle bacilli in the sputum. Tuberculosis and bronchiectasis could coexist, and when they did he thought operation should be undertaken if practicable. When the lung was completely destroyed, surgical treatment should be carried out if possible. In cystic bronchiectasis, the type in which little "birds' nests" were seen in the lower lobes, care

was essential, because they were probably present in the upper lobes as well. As Dr. Monk had said, the fate of bronchiectatics was still unknown. Dr. Harvey said that he thought the mortality rate was very low; in the last six years he had had only one patient with a cerebral abscess. He was impressed with the comparative well-being of bronchiectatics as he saw them. He wondered whether Dr. Monk's 50 patients with invalid pensions were really unfit to work or whether they were in some cases "doctor-made" invalids. Dr. Monk had suggested that very few physicians were interested in bronchiectasis; Dr. Harvey joined issue with him there. He said that bronchiectasis was a difficult disease, and many physicians did try to cope with it. At several of the teaching hospitals of Sydney they were trying, in collaboration with the surgeons, to select suitable patients for operation and to treat patients by physiotherapy and all other approved methods. Dr. Harvey, in conclusion, paid a further tribute to the physiotherapists, and said that if they were properly trained they would probably "steal the show".

DR. R. S. STEEL supported Dr. Harvey's statement that bronchiectasis did occur without obvious cause. Every now and again one examined a patient who had had an hæmoptysis without any previous cough, and only when a bronchogram was taken did one find small areas of atelectasis. In the text-books respiratory infections were given prominence as a cause of bronchiectasis. Dr. Steel said that in his opinion gross upper respiratory tract infection was not so common as one was led to believe. Measles and such diseases played a big part; but one thing was of great importance, and that was asthma, which had been mentioned, though it should be included in the wider heading of allergy. Dr. Steel said that he would like more attention to be paid to it. Often inquiry would reveal a history of allergy in the family and in the patient himself. That might be the starting point of bronchiectasis, with superimposed infection. In such cases the allergy must be treated. Dr. Steel said that he had been pleased to hear emphasized the reversibility of the cylindrical type of bronchiectasis. A change to a dry climate worked wonders. Physiotherapy was most essential. Dr. Steel agreed with Dr. Monk that chest physiotherapy in Sydney was poor; he had seen children absolutely "bashed" to make them cough. There was no need even to touch them. Another worthwhile type of treatment was the use of vaccines and iodides. If the measures outlined were used in the treatment of patients with cylindrical bronchiectasis, they would be given a chance to return to normal.

DR. BRENDA LAWS asked Dr. Alexander how he classified children who were brought by parents with the statement that the child had had a cough since birth. She thought that some parents must be observant and tell the truth. One found children or young adults with a cough resembling that of bronchiectasis, yet otherwise apparently healthy. Such patients had a kind of thick wedge of tenacious mucus lying in the upper part of the trachea and the upper bronchi and there was no abnormality beyond that. Dr. Laws said that she thought those people had poor tussive force—they seemed to roll the mass round in the trachea. With bronchoscopic suction on one or two occasions and postural drainage the condition cleared up.

DR. N. C. NEWTON spoke on the subject of physiotherapy and physiotherapists. He said that there was no doubt that physiotherapy was most important, and he agreed with those at the Royal Alexandra Hospital for Children that there was no limit to the age at which people could be taught to cooperate. Even very young children could be taught in groups. In his opinion bronchoscopy had only one place, and that was to diagnose the presence of a foreign body. Dr. Newton agreed with Dr. Harvey that the Sydney physiotherapists were well trained, but as in every other branch of medicine it was not what one was taught that mattered, but how interested one was in carrying out one's work. Dr. Newton thought that the poor chest physiotherapists in Sydney were simply not interested. Dr. Newton agreed that there was such a thing as reversible bronchiectasis. He thought that those who operated on bronchiectatic patients were becoming more and more wary of operating on those with the cylindrical type because of that reversibility. He had not yet seen reversible saccular bronchiectasis. Referring to bilateral bronchiectasis, Dr. Newton said that it happened that if one operated on the worse side first, the patient afterwards might be so well that one did not know whether to go on and operate on the other. That was probably an indication for operating on the worse side first. The reverse had been taught by some surgeons; but J. I. Hayward, of Melbourne, preferred the first method. The symptoms of the patient should determine whether or not operation should be performed.

DR. T. Y. NELSON stressed a point already emphasized—the difficulty of radiological diagnosis in the early case. He said that he thought it was not uncommon for a child with symptoms of bronchiectasis to have a normal bronchogram in the early stages. The term "pre-bronchiectasis" had been coined for that condition, but it should be dropped. Elaine Field had examined a large series of such patients and had found that later nearly all of them developed bronchiectasis. They should all be treated as suffering from bronchiectasis. On the question of operation in bilateral bronchiectasis, Dr. Nelson said that he belonged to the school that believed in operation. It had been his experience that a great and obvious improvement occurred in children subjected to operation on the side worse affected.

DR. R. A. R. GREEN discussed prophylaxis, which he thought had been approached from the wrong angle. He said that Dr. Alexander had spoken of prophylaxis in established cases; but the fact that such cases arose in children aged under two years from pneumonia, pertussis *et cetera* seemed to point out that the prophylaxis of bronchiectasis should be carried out before any such thing was present. Before a child who had suffered from pneumonia or pertussis was discharged from care, the clinician should make sure that no lung signs were present. If such signs were present, something should be done about them. For example, the child could be taught to breathe properly. Children with chronic nasal infections, peribronchial conditions and so on did not use the base of the lung in breathing. Dr. Green agreed with Dr. Steel about the value of climatic change. Children recovering from a basal infection did well if they were transferred for a long time out of the city area, beyond the north-easterly wind belt. Dr. Green spoke of the experience at the Smith Family home outside Parramatta. When the home was first opened, chronic bronchitic and bronchiectatic children were kept there for four, five or six months, and the condition cleared up quickly. In fact, the children were so well and so energetic that the others who had rheumatic heart disease tried to imitate them, and so a decision had to be made which of the two groups should be kept there. It was finally decided to keep the home for children with chronic heart disease. Dr. Green did not think that there should be a "bronchiectatic clinic" at the Royal Alexandra Hospital for Children; it was a reflection on the community that such cases were allowed to occur.

Dr. Macdonald, from the chair, thanked Dr. Alexander and Dr. Monk for their papers, and congratulated them on having stimulated such an interested and interesting discussion.

Dr. Alexander, in reply, said that Dr. McManis had cast doubt on the importance of pneumonia as a disease precipitating bronchiectasis, pointing out that pneumonia was a symptom of it. Dr. Alexander said, first of all, that they depended on the history of the patient given by the parent. One particular child, whose bronchogram he had shown, had been examined that afternoon; that child had had no cough at all until the age of fourteen months, when she suffered from bronchopneumonia, and since then she had had a constant cough. Dr. Alexander did not think pneumonia was a symptom of bronchiectasis; he thought pneumonitis and the presence of atelectatic areas were. Dr. McManis had quoted a series of cases of whooping-cough, in which 3% of the patients later developed bronchiectasis; Dr. Alexander said that that stressed the importance of prophylaxis in any conditions that left a cough for any length of time. Dr. McManis had said that he had seen a large number of patients with bronchiectasis and that a few had shown no chest signs. Dr. Alexander said that in those who had physiotherapy and carried it out thoroughly, chest signs were frequently absent. Dr. McManis relied on clubbing of the fingers as a diagnostic sign. Dr. Alexander said that at the Royal Alexandra Hospital for Children only 85% of patients showed it. If one depended on that sign only, 15% would be missed. Dr. Harvey had mentioned cases of insidious onset and the possibility that they might be due to a foreign body. Dr. Alexander thought that in most children under the age of two years some symptoms from the inhalation of a foreign body would be expected. There was no child at the clinic who had a history of having inhaled a foreign body. Referring to the question of periods of freedom from cough, Dr. Alexander insisted that children with bronchiectasis did not have periods of freedom. Dr. Steel had mentioned bronchiectasis without cough; Dr. Alexander said that it depended on the definition of bronchiectasis. If one meant bronchial dilatation, it was true that that did exist without cough. In the article to which he had referred, in a series of 115 cases, the patients being men aged up to the early thirties, only one had a cough, and in his case the dilatation affected the lower lobe of the left lung. Dr. Steel had also mentioned the question of allergy. Dr. Alexander said that in his experience, although some asthmatics had bronchiectasis, it was not very common; most showed a characteristic bronchographic picture, in that dilatation was confined to the proximal rather than the distal bronchi; in true bronchiec-

tasis the opposite was the case. Referring to prophylaxis and breathing exercises, Dr. Alexander said that the best method of getting children to cough up sputum was to get them to run round. That was one of the best ways of promoting drainage. He had not used vaccines. Some time previously he had carried out a bacteriological investigation of the secretion obtained on suction and had not constantly found any particular microorganism. He could not answer Dr. Laws's question about the cough present since birth. In reply to Dr. Green's comments on the uselessness of prophylaxis when the condition was established, Dr. Alexander said that he had not meant to give the impression that it was usual to wait till then. He had intended to stress the importance of clearing up any pneumonia or atelectasis and of carrying out a radiological investigation of any child whose cough after an infectious disease did not clear up in a reasonable time. Dr. Alexander agreed that Brock's "prebronchiectasis" was a meaningless term and should be dropped.

Dr. Monk agreed with Dr. Vickery that in bilateral bronchiectasis, if the condition was cleared up on one side, on the other it might become clinically insignificant. On the subject of physiotherapy, Dr. Monk said that he had seen a good cross-section of the bronchiectasis in Sydney; he had seen many patients treated in various physiotherapy departments, and in not one case had they had proper physiotherapy. They were given breathing exercises, with emphasis on exercises; they had not been taught to use their chests properly. Chest physiotherapy in Sydney was seriously deficient. In reply to Dr. Harvey's question whether the 50 invalid pensioners he had mentioned were really invalids, Dr. Monk said that some were undoubtedly doctor-made invalids; but the others had great disability. Some were compelled to spend much of the winter in bed and could not carry on with their work. Dr. Harvey had said that physicians were interested in bronchiectasis; Dr. Monk said that in his opinion only a mere handful in Sydney were interested, and that was insufficient. In reply to Dr. Nelson, Dr. Monk said that he had not meant to give the impression that he would not perform operations in bilateral bronchiectasis; as a matter of fact, nearly all his operations had been performed on patients with bilateral disease.

VICTORIAN BRANCH NEWS.

A MEETING of the Section of Industrial Medicine, to which all members of the Branch are invited, will be held on Monday, October 19, 1953, at 8 p.m. in the Medical Society Hall. Mr. R. A. Smithers, Q.C., will speak on "The Doctor in the Witness Box". He will discuss medical evidence, medical certification and other medico-legal matters of interest to members of the Branch.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

CORONERS' INQUESTS AND POST-MORTEM EXAMINATIONS.[1]

[*The Australian Medical Gazette*, September, 1871.]

IN the course of some pertinent remarks on the practice adopted by coroners of ordering after death examinations on frivolous grounds and in cases where the cause of death is obvious, the *Clunes Gazette* of the 16th inst. observes: "We are glad to notice the growing dislike of coroners juries to *post-mortem* examinations when the cause of death is evident. We never could understand why, for instance, when a poor suicide was found suspended from a rafter, or a man was killed by a fall it was necessary to examine his stomach or his brain. There can be no doubt that these after death mutilations have been too often practised that the medical friend of the coroner might pocket the customary two or three guinea fee. Government, however, could easily check a most objectionable custom if the Minister for Justice were to refuse to allow a post-mortem examination fee in every instance in which the cause of death can be ascertained without opening the body. Irrespective of the question of expense, the friends of the dead ought, whenever the public interests permit, to be spared the pain of knowing that the body has been needlessly hacked by the surgeon."

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

STUDIES ON A LONG-RANGE ASSOCIATION BETWEEN BULBAR POLIOMYELITIS AND PREVIOUS TONSILLECTOMY.

SIR: With reference to the article by Dr. R. V. Southcott in the joural of August 22 there is one weak point in the investigations that he has made. Apparently no check was made of the adequacy of the tonsillectomy operation which the patients that were subject of the inquiry underwent.

Some several years ago as a medical officer in England I was interested in observing how inquiry was made into the effect of adenotonsillectomy on the incidence of colds in children. As in Dr. Southcott's series of cases the parents of the child, or the child itself, were asked if the tonsils had been removed. On one day I was able to examine a group of 14 of the children for whom the answer "yes" had been given in reply to the question. In the large majority—I think it was nine out of the fourteen, if I remember correctly—tonsillar tissue was present in varying amounts in each pharynx, and in my opinion the answer to the question in the nine cases should have been "no".

I would not be surprised to know that examination of the children in Dr. Southcott's series referred to above, would reveal a similar state of affairs. The question is important because some of us are of the opinion that the virus of poliomyelitis is first harboured in the pharyngeal tonsils, and I have been informed by medical officers concerned that of all the cases of poliomyelitis admitted to the isolation hospital in Brisbane in the last epidemic in Queensland one only had had the tonsils and adenoids removed.

It would be interesting to make, and not too difficult to arrange for, a pharyngeal examination of the survivors of the series of cases used by Dr. Southcott.

Yours, etc.,
"POLIO."

Brisbane,
September 14, 1953.

"DRIVING UNDER THE INFLUENCE."

SIR: I have been particularly interested in your two "Special Articles for the Clinician" dealing with the medical and legal aspects of "Driving Under the Influence". The problem seems to me to be one in which the general practitioner is most deeply concerned, as he is the one who usually has to conduct the examination of the suspect, and who has to undergo the trials of cross-examination in the witness box. After one or two unpleasant experiences in court, where a clever barrister had made my questioning very difficult, I determined on the following routine in dealing with these cases—so far with success: (i) When the police bring the suspect into the surgery, he is at once asked to write his full name and address, the day of the week, the time of day, and the date of the month on a sheet of paper, which sheet is then signed by myself and the constable, with the date and time. (ii) The suspect is then asked to sign a paper giving permission for a blood sample to be taken. (iii) A full clinical examination is made and recorded. (iv) Five cubic centimetres of whole blood are taken, the skin being cleaned with soap and water and cotton-wool, and dried with sterile wool—the blood being put in a tube, corked, labelled, and given to the constable to take to the public analyst as soon as possible.

With regard to these four stages: (i) This document, usually an illegible scrawl, is very valuable evidence. (ii) This is a double-barrelled weapon—if the suspect remembers signing it, he cannot object to the blood test; if he cannot, then it is a point against him. (iii) This enables "red herring" questions to be answered. (iv) The avoidance of methylated spirit renders the time-honoured question regarding contamination of the specimen with spirit completely harmless.

In the half-dozen or so cases I have used the above routine (all but one on a Sunday) I have been able to enter the witness box with absolute confidence. All the blood alcohol levels except one have been above 0·240%. The lower one was 0·179% in a boy of nineteen, who was practically unconscious on examination and later pleaded guilty. The highest, 0·310%, was taken at 11.30 a.m. on a Sunday, the defendant's second offence, for which he was gaoled—he appealed against his sentence (without success!). In one case (0·30%) the barrister tried to suggest that with an experimental error of 0·2% (for which he quoted the authority of Dr. Bowden) the blood alcohol content could conceivably have been only 0·1%—his suggestion was not successful.

If, as your articles suggest, fine judgement is lost at a blood concentration of 0·040%—with which I agree—then it would appear that most cases apprehended by the police are well past the doubtful stage, and I make no apologies for doing my best to get these drivers convicted when there is no doubt at all that they are well "under the weather". I think that as a profession we owe this duty to society. In conclusion, in order to clear away any wrong impression, might I state that I am not a teetotaller?

Yours, etc.,

DONALD CORDNER.

Tarawera,
Diamond Creek,
Victoria.
September 15, 1953.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, promotions *et cetera* are promulgated in the *Commonwealth of Australia Gazette*, Number 55, of September 10, 1953.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Appointment.—Benjamin Crawshaw is appointed Surgeon Lieutenant-Commander (for Short Service), with seniority in rank of 28th April, 1951, subject to such appointment being deemed to be temporary service for the purpose of the *Defence Forces Retirement Benefits Act*, 1948-1952, dated 1st July, 1953.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Volunteer Reserve.

Appointment.—William McLaren Thomson is appointed Surgeon Lieutenant, with seniority in rank of 1st January, 1949, dated 1st April, 1953.

Grant of Honorary Rank.—William Henry Roberts is granted the honorary rank of Surgeon Lieutenant-Commander, dated 1st July, 1953.

Promotion.—Surgeon Lieutenant Roland Frederick Kingston is promoted to the rank of Surgeon Lieutenant-Commander, dated 14th December, 1952.

District Naval Medical Officer.—Honorary Surgeon Lieutenant-Commander William Henry Roberts is appointed District Naval Medical Officer, Queensland, dated 1st July, 1953. The appointment of Surgeon Commander Stephen Creighton Suggit as District Naval Medical Officer, Queensland, is terminated, dated 30th June, 1953.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

3/40099 Captain J. M. Bradley is appointed to command 2nd Field Ambulance and to be Temporary Major, 4th June, 1953.

Regular Army Special Reserve.

Royal Australian Army Medical Corps (Medical).

VX700317 Honorary Captain A. W. Riseborough is appointed from the Reserve of Officers, and to be Captain (provisionally), 1st December, 1952.

To be Captain (provisionally), 1st December, 1952.—VX700316 William Chanen.

NX700404 Captain (provisionally) J. K. Donovan relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District) in the honorary rank of Captain, 14th October, 1952.

The following officers relinquish the provisional rank of Captain and are transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain: VX700316 W. Chanen, 7th January, 1953, and VX700317 A. W. Riseborough, 6th January, 1953.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—1/33098 Honorary Captain E. F. Reye is appointed from the Reserve of Officers, and to be Captain (provisionally), 18th June, 1953.

1/39131 Captain (provisionally) B. S. Purssey is seconded whilst undergoing post-graduate studies in the United Kingdom, 5th May, 1953.

Eastern Command: Second Military District.

Royal Australian Army Medical Corps (Medical).—2/146561 Captain K. J. Coventry is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District), 23rd June, 1953. 2/127803 Captain (provisionally) R. M. O'Donohue relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District), in the honorary rank of Captain, 10th March, 1953.

2/165481 Lieutenant-Colonel (Honorary Colonel) E. Ford, O.B.E., is appointed from the Reserve of Officers, is appointed Director of Army Health, Army Headquarters, and to be Temporary Colonel, 21st July, 1953. To be Temporary Major, 4th August, 1953: 2/70937 Captain A. L. Hellestrand.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—The provisional ranks of the following officers are confirmed: Captains 3/101812 P. J. Ryan and 3/101012 C. F. MacDonald. To be Temporary Lieutenant-Colonels, 21st July, 1953: 3/50012 Major J. C. Stewart and 3/50151 Captain (Temporary Major) J. H. Lindell. 5/26400 Captain (provisionally) M. N. Orton is seconded for post-graduate studies in the United Kingdom, 2nd January, 1953. 3/50084 Lieutenant-Colonel H. McLorinan is placed upon the Retired List (3rd Military District) in the honorary rank of Colonel and with permission to wear the prescribed uniform, 1st July, 1953. To be Colonels, 3rd August, 1953: Lieutenant-Colonels (Temporary Colonels) 3/50055 R. Officer and 3/50090 A. J. M. Sinclair. To be Lieutenant-Colonel, 3rd August, 1953: 3/50147 Major (Temporary Colonel) E. R. Crisp, and retain the temporary rank of Colonel.

Central Command: Fourth Military District.

Royal Australian Army Medical Corps (Medical).—To be Colonel, 3rd August, 1953: 4/31901 Lieutenant-Colonel (Temporary Colonel) R. G. Champion de Crespigny.

Western Command: Fifth Military District.

Royal Australian Army Medical Corps (Medical).—The age for retirement of 5/32054 Colonel J. H. Stubbe, E.D., is extended until 31st July, 1954. 5/26486 Captain (provisionally) M. D. McCallum relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (5th Military District) in the honorary rank of Captain, 3rd July, 1953.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

2nd Military District.—To be Honorary Captain, 16th July, 1953: Erwin Ludwig Fischer.

3rd Military District.—To be Honorary Captains: John Douglas Aberdeen, 22nd June, 1953, and John William McCallum and John Brian Anchen, 1st July, 1953.

The notification respecting Honorary Captain L. K. Morgan which appeared in Executive Minute No. 95 of 1953, promulgated in *Commonwealth Gazette* No. 37 of 1953, is withdrawn.

1st Military District.—To be Honorary Captains: John Bell, 28th July, 1953, Brian Eugen Eliott Hirschfeld and Peter Mactaggart, 27th July, 1953, Douglas George Wilson,

6th August, 1953, and William Edmund McGovern, 21st September, 1952.

2nd Military District.—The resignation of Honorary Captain G. P. Dodd of his commission is accepted, 19th June, 1953. To be Honorary Captain, 28th July, 1953: Julian Bernard Glass.

3rd Military District.—To be Honorary Captain, 6th July, 1953: Charles George Sargent Hosking.

The following officer is placed upon the Retired List within the Military District as shown, with permission to retain his rank and wear the prescribed uniform:

1st Military District.—Lieutenant-Colonel M. L. D. McKeon, 15th July, 1953.

Honours and Awards.

The Australian Efficiency Decoration.

NX35131 Lieutenant-Colonel (Honorary Colonel) Arthur William Morrow, D.S.O., Royal Australian Army Medical Corps (now Reserve of Officers).

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

Squadron Leader L. R. Trudinger (033059) is granted the acting rank of Wing Commander, 24th August, 1953.

The resignation of Flight Lieutenant D. J. Hannan (012786) is accepted, 31st July, 1953.

The following are appointed to short-service commissions, on probation for a period of twelve months, 3rd June, 1953, with the rank of Flight Lieutenant: Francis Owen Piers Pearce (039510), John Gerard Campbell (039449).

The short-service commission of Flight Lieutenant (Temporary Squadron Leader) A. V. Coleman (033029) is extended for a period of two years, 23rd September, 1952.

The resignation of Flight Lieutenant F. E. Williams (039459) is accepted, 21st July, 1953.

Active Citizen Air Force.

Medical Branch.

No. 25 (City of Perth) Squadron.—Flight Lieutenant B. R. Buttsworth (051361) is transferred from the Reserve, 7th March, 1953.—(Ex. Min. No. 84—Approved 31st August, 1953.)

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1950, as duly qualified medical practitioners: Grant, Frank John, M.B., B.S., 1950 (Univ. Melbourne); Tonkin, Aubrey Douglas, M.B., B.S., 1951 (Univ. Adelaide); Chambers, Alfred Williams, L.R.C.P. (Edinburgh), 1942, L.R.C.S. (Edinburgh), 1942, F.R.C.S. (Edinburgh), 1945, L.R.F.P.S. (Glasgow), 1942; Cunningham, Mark Laurence, M.B., B.S., 1953 (Univ. Adelaide); Nolan, Brian Patrick, M.B., 1953 (Univ. Sydney).

The following additional qualifications have been registered: Hoyle, Alan Ross (M.B., B.S., 1953, Univ. Sydney), B.Sc. (Med.), 1951 (Univ. Sydney); Metcalf, Donald (M.B., B.S., 1953, Univ. Sydney), B.Sc. (Med.), 1951 (Univ. Sydney); Darvall, Anthony Roger (M.B., B.S., 1942, Univ. Sydney), Dip.Ophth., 1951 (Univ. Sydney); Gardner, Robert Augustin (M.B., 1916, Univ. Sydney), Ch.M., 1928 (Univ. Sydney), D.M.R.E., 1922 (Univ. Cambridge), F.F.R. (London), 1937; Jones, John Morrison (M.B., 1943, Univ. Melbourne), F.R.C.S. (England), 1951; Thomas, Alfred Charles Garven (M.B., B.S., 1943, Univ. Sydney), F.R.A.C.S., 1953; Fitzherbert, John Crouch (M.B., 1943, Univ. Sydney), F.R.C.S. (England), 1952.

QUEENSLAND.

THE following have been registered, pursuant to the provisions of *The Medical Acts*, 1939-1948, as duly qualified

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED AUGUST 29, 1953.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	2	5(5)	..	..	..	..	..	..	7
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	2	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	2(1)	..	..	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	7(5)	2(1)	..	..	1	1	..	11
Diphtheria	8(5)	2(2)	4(3)	1(1)	..	..	..	..	15
Dysentery (Bacillary)	..	1(1)	..	2(2)	7(5)	..	..	..	10
Encephalitis	1	1	..	2	..	..	..	..	4
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	..	4(2)	..	..	6(4)	..	..	..	10
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	4	..	4
Leptospirosis	..	..	2	..	..	..	..	..	2
Malaria	..	..	..	..	..	..	1	..	1
Meningococcal Infection	3(2)	2	..	1(1)	1	1	..	..	8
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	1(1)	..	..	..	..	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	8(5)	2(1)	..	7(7)	..	..	..	..	17
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	17(13)	4(3)	..	20(15)	..	..	..	41
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	15(11)	33(21)	2(1)	3(3)	3(3)	1(1)	..	..	57
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	1	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	46(35)	7(5)	13(3)	8(6)	4(2)	3(2)	..	..	81
Typhoid Fever	11(8)	3(3)	4(1)	3(2)	1	..	..	..	22
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

medical practitioners: Campbell, John Gerard, L.R.C.P., L.R.C.S., R.C.S. (Ireland), 1949; Russell-Jones, Colin Graham, M.B., B.S., 1952 (Univ. Sydney).

The following additional qualifications have been registered: McDonnell, Francis Arthur, D.C.H., R.C.P. and S. (England), 1953; Matchett, Victor Lewin, D.P.M., 1953 (Univ. Melbourne); Cockburn, Keith Gordon, M.R.C.O.G. (London), 1953.

TASMANIA.

THE following has been registered, pursuant to the provisions of the *Medical Act*, 1918, as a duly qualified medical practitioner: Long, Dorothy Mavis, M.B., B.S., 1951 (Univ. Adelaide).

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Clinical Meeting at Balmoral Naval Hospital.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a clinical meeting will be held at the Balmoral Naval Hospital on Tuesday, October 13, 1953, at 2 p.m., when Dr. W. Scott Charlton will speak on "Spinal Injuries Under Active Service Conditions". Clinical cases will be shown after the lecture. All members of the medical profession are invited to attend.

Annual Subscription Course.

The Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Royal Prince Alfred Hospital Medical Officers' Association, Dr. Douglas Guthrie, M.D., F.R.C.S. (Ed.), medical historian of Edinburgh, will give a lecture on "Witches and Witch Doctors" on Wednesday, October 21, 1953, at 8.30 p.m. The lecture will be held in the Great Hall of the University of Sydney, and academic and evening dress will be worn.

Congresses.

PAN-PACIFIC SURGICAL ASSOCIATION.

THE sixth congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, from October 7 to 18, 1954. An outstanding programme, including sessions in all divisions of surgery and related fields, is being arranged. Surgeons who plan to attend the meeting are urged to make early arrangements. Contributions to the programme are invited, and submissions of subjects and subject matter should be made as soon as possible to help the activities of the programme committee. The Association office has been appointed as travel agents to those attending the congress, and it is important that all hotel and travel reservations should be made through the Honolulu headquarters of the Pan-Pacific Surgical Association. Details are available from Keith Kirkland, 137 Macquarie Street, Sydney, who is chairman for Australia. For further information write to F. J. Pinkerton, M.D., Director-General, Pan-Pacific Surgical Association, Suite 7, Young Hotel Building, Honolulu, Hawaii.

Medical Appointments.

The following have been appointed directors on the Board of the Prince Henry Hospital of New South Wales: Dr. A. M. McIntosh and Professor H. R. Dew, nominated by the Senate of the University of Sydney; Dr. T. M. Furber, nominated by the Council of the Royal Australasian College of Surgeons; Dr. R. Jeremy, nominated by the Council of The Royal Australasian College of Physicians; Dr. V. M. Coppleson, nominated by the New South Wales Post-Graduate Committee in Medicine in the University of Sydney.

Dr. R. G. Gold has been appointed out-patients' registrar at the Royal Adelaide Hospital.

Dr. M. Tipping has been appointed registrar at the Northfield Wards, Royal Adelaide Hospital.

Deaths.

THE following deaths have been announced:

LE PAGE.—John Alexander Le Page, on September 10, 1953, at Brighton, Victoria.

EADIE.—John McIntyre Eadie, on September 18, 1953, at Bendigo, Victoria.

Diary for the Month.

OCT. 6.—New South Wales Branch, B.M.A.: Council Quarterly.
OCT. 7.—Victorian Branch, B.M.A.: Branch Meeting.
OCT. 7.—Western Australian Branch, B.M.A.: Council Meeting of Delegates.
OCT. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
OCT. 13.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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